

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2007 FIRE SEASON OVERVIEW

The 2007 fire season for Northwest Oregon and Southwest Washington was rather short, due to a wetting rain event in mid-July, another one in mid-August, and multiple wetting rain days in late September. There seemed to be a higher frequency of onshore low-level flow this season, compared to previous years. The onshore flow resulted in cooler seasonal average high temperatures, higher seasonal average daytime humidity, and much shorter dry spells. The most critical part of the fire season was mid-July through mid-August, although most areas observed peak ERC values in September. There were two Red Flag events in July. The first was an east wind episode, immediately followed by a lightning outbreak. A stronger Red Flag east-wind event took place in early September. Despite a somewhat cooler and moist fire year, the 32 warnings issued were the most since the transition of east-side zones 609, 610, and 611 to the Pendleton office.

The pre-season precipitation was generally above normal region-wide. However, the overall pre-season totals were skewed by a record-setting November. Incessant rainfall continued through the first part of December. The latter half of December through January was relatively dry, followed by a wet February. Springtime precipitation was generally below normal. May began cool and wet, but the latter two-thirds of the month was warm and dry. Cool and moist conditions persisted through much of June, although many areas received below-normal precipitation amounts. The wettest June period was the 1st through the 10th. All climate areas observed at least one wetting-rain day. An abrupt shift to hot and dry conditions occurred in early July, with the first Red Flag event starting on July 8th. Critical fire conditions were short-lived, as another wetting rain occurred during the middle of July. The relatively short dry spells characterized the 2007 fire season. The longest dry spell was just 38 days, in the Coast Range zones. The short dry spells prevented fuel conditions from reaching record levels experienced in 2006. Warm and dry conditions from late August through mid-September yielded the highest ERC values of the season. A shift to a late-fall pattern at the end of September brought a sudden halt to the fire season. The cool and wet regime continued through early October. Many of the higher-elevation ski resorts had one to two feet of snow during the first week of October.

The latter half of fall 2006 was extremely wet. Record-setting November precipitation produced a snow depth of 55 inches at Government Camp by November 28th. Precipitation declined in December, with the snow depth dropping to around 35 inches by the end of the month. A big early-January storm resulted in an increase from 29 inches on January 3rd, to 61 inches on the 7th. The snow depth remained fairly constant, around 50 inches, through the 22nd, but then fell to 36 inches by the end of January. A mild February brought the snow depth down to a minimum of 19 inches on the 18th. A series of colder storms in late February and early March increased the snow pack to a seasonal high of 63 inches on March 3rd. Typically, mountain snow pack reaches a peak in March, and 2007 was no exception. However, the rest of March turned out warm and relatively dry. As a result, the Government Camp snow depth dwindled to just 10 inches by the 31st. Snow depth fell to zero in early April, but reached 10 inches on the 19th. The snow pack was short-lived. Government Camp recorded zero inches on April 23rd. Snow cover usually persists through early June.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Fuel conditions were less extreme in 2007 compared to last year. In 2006, the Cascade zones experienced 35 days or more of critical fuel conditions. Last year the Central Oregon Cascade zones had a maximum daily ERC average of 57.6. The 97th percentile value is 49.7. This year, the North Cascade zones reached critical fuel levels on just one occasion. The Central Cascade zones had four days of critical conditions. The relatively short dry spells this year prevented fuel conditions from getting too extreme. The dry spell for all climate areas was the shortest since at least 2001.

The 2007 seasonal ERC profiles showed some interesting trends. A warm and dry period in mid to late May allowed ERC values in all areas to reach at least the 75th percentile. The Central Oregon Cascade zones had an average ERC value of 31.8 on May 31st. Similar to 2006, the first half of June was cool and somewhat wet. The average ERC values in all climate areas decreased to the 50th percentile, or lower. In 2006, a wet June resulted in single-digit 10-day average ERC values. All climate areas showed two distinct peak ERC periods. The first occurred in early July, but did not last long. The second half of July was cooler than normal. There was also a wetting rain event around the 20th. The second maximum took place in early September. It is interesting to note that the 10-day period September 1-10 of this year was quite similar to that of last year. The average ERC for all climate areas reached the 95th percentile, or greater, on September 11th. Last year, the maximum daily average ERC occurred during the period September 1-10. Dry conditions persisted through mid-September, but a major pattern change occurred at the end of September. All areas continued to exhibit average ERC values at or above the 95th percentile as late as September 25th. The Coast Range zones had an average ERC of 51.5 on the 25th, well above the 95th percentile. Emigrant RAWs, in the south part of zone 608, recorded its highest daily ERC of 69 on September 26th. Last year Emigrant observed an ERC of 70 or greater on 25 days. The highest daily value was 81.

Unlike last year, the early part of fall was quite wet. ERC values went from extreme values at the end of September to single digits by the first week of October. Last year, ERC values remained at or above the 75th percentile through October 10th.

The 2007 came to an abrupt end in late September as the first in a series of wet storm systems impacted the district. Several RAWs in the Cascades and foothills received an inch or more of precipitation on the 28th. Another storm on the 30th brought widespread one to three-inch rainfall amounts to the district.

There were three “critical” fire weather events this season. One event was for problematic lightning and the other two were for wind and low humidity. There was a potential fourth event, but it did not materialize. A watch was issued for problematic lightning on the afternoon of July 12th, valid for the afternoon of the 13th, but was dropped on the morning of 13th. Nearly all areas experienced below-normal lightning activity in 2007. Lightning days were interspersed throughout the season, although most areas showed a slightly higher frequency from mid-September through mid-October. The Central Oregon Cascade zones typically experience 18-20 lightning days per season. In 2007, this area had only 12 lightning days, five of which occurred after September 10th.

There were no changes in Red-Flag criteria for the 2007 season. The problematic lightning concept devised by the Northwest Coordination Center continues to be refined. The main premise was to develop Red-Flag criteria highly dependent on current and forecast fuel

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

conditions before, during, and after a significant weather event. The idea was to get away from the subjectivity inherent in the dry lightning concept, or using specific rainfall criteria (generally one-tenth of an inch or less). The new criteria provide a better means of verification.

The forecast district experienced one large fire in 2007. There were three large fires in 2006. A major fire is defined as 100 acres or an incident that requires a Type II management team. The one large fire was the Ball Point Fire. This 1200-acre lightning-caused fire on the east side of the Mt. Hood National Forest started around July 12th. It was an active year for the Portland IMETS. The IMETS provided service on eight incidents.

Spot forecast activity showed a dramatic decrease this year compared to 2007. There were 95 spot forecast requests in 2007, but 216 in 2006. Wildfire activity was a major contributor to the 2006 spot total. There were 96 wildfire spot requests last year, but only 25 this year. The Willamette National Forest continues to show the highest frequency of spot requests. There were 58 spot requests from the Forest Service, of which 39 came from the Willamette National Forest.

Training and outreach remained a significant part of the fire weather program at the Portland office. The staff taught numerous classes, which started as early as January. Teaching requests continued into June. The Portland office provided assistance to its former east-side users as well.

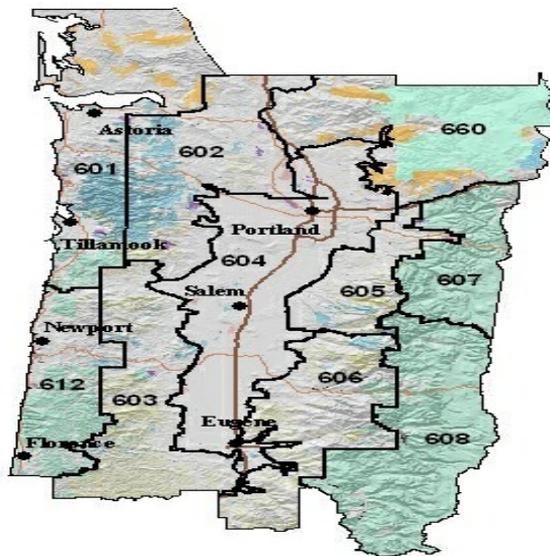


FIGURE 1 – PORTLAND FIRE WEATHER DISTRICT 2007

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

PRE-SEASON: PRECIPITATION

Table one (below) shows precipitation amounts for various locations from fall through spring. All sites were near or above normal, with some areas well above normal. The overall seasonal averages were similar to 2006. A closer look at the monthly figures shows two distinct patterns. November was extremely wet. Below-normal precipitation was common from March through May. Many locations experienced record-setting rainfall in November. Astoria received over 10 inches of rain in three days. Lees Camp, in the Coast Range, set a new statewide 24-hour rainfall record with over 14 inches. Laurel Mountain had an astounding 270 percent of normal. February was another wet month for most areas. Nearly all west-side basins exceeded 100 percent of normal. The North Oregon Coast basin had 182 percent of normal. February 2007 broke a string of three consecutive February's with below normal to well-below normal precipitation. The district experienced a warm and dry spring. April and May were quite dry. The Willamette and North Oregon Coast basins received just 50 percent of normal May precipitation. Several locations recorded high temperatures in the mid 80s to lower 90s at the end of May.

The dry spring raised concerns about an extreme fire season. However, it is difficult to correlate springtime precipitation to fire-season severity. Primary issues regarding overall fire-season severity is the amount of precipitation that occurs in May and June and the overall dry spell. Despite a warm and dry May, which resulted in a pre-mature spike in ERC values, June turned out to be cooler than normal. Wetting rain events in July and August resulted in shorter dry spells and, ultimately, a less severe fire season than expected. Many west-side basins exceeded 100 percent of normal July precipitation. The Willamette basin had 100 percent of normal, and the North Oregon Coast 128 percent of normal. Southwest Oregon was even wetter. The Umpqua/ Rogue basin ended up with 163 percent of normal July precipitation.

TABLE 1 - 2006-2007 WET SEASON PRECIPITATION SUMMARY

| | NOV | DEC | JAN | FEB | MAR | APR | MAY | TOT | AVE | PCT AVE |
|--------------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|---------------|---------------|----------------|
| Astoria | 21.07 | 10.75 | 7.62 | 10.78 | 8.85 | 3.00 | 1.63 | 63.70 | 53.71 | 118.60% |
| Newport | 17.68 | 7.97 | 7.28 | 10.54 | 7.29 | 3.37 | 1.22 | 55.35 | 57.47 | 96.31% |
| Laurel Mtn. | 49.59 | 23.86 | 12.45 | 21.44 | 8.77 | 7.00 | 2.39 | 125.50 | 100.92 | 124.36% |
| Portland | 11.97 | 5.86 | 2.74 | 3.47 | 3.23 | 2.01 | 1.45 | 30.73 | 28.98 | 106.04% |
| Eugene | 14.28 | 7.68 | 4.04 | 5.22 | 1.96 | 2.23 | 1.34 | 36.75 | 42.35 | 86.78% |
| G. Camp | 26.51 | 12.81 | 10.23 | 11.77 | 6.81 | 6.10 | 2.74 | 76.97 | 71.40 | 107.80% |
| Oakridge | 11.05 | 8.73 | 4.08 | 6.01 | 3.87 | 3.97 | 1.69 | 39.40 | 37.34 | 105.52% |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Figure two depicts the November 2006 precipitation anomaly for the Pacific Northwest. The charts on pages 6 through 9 show the 2006-2007 pre-fire season precipitation compared to normal.

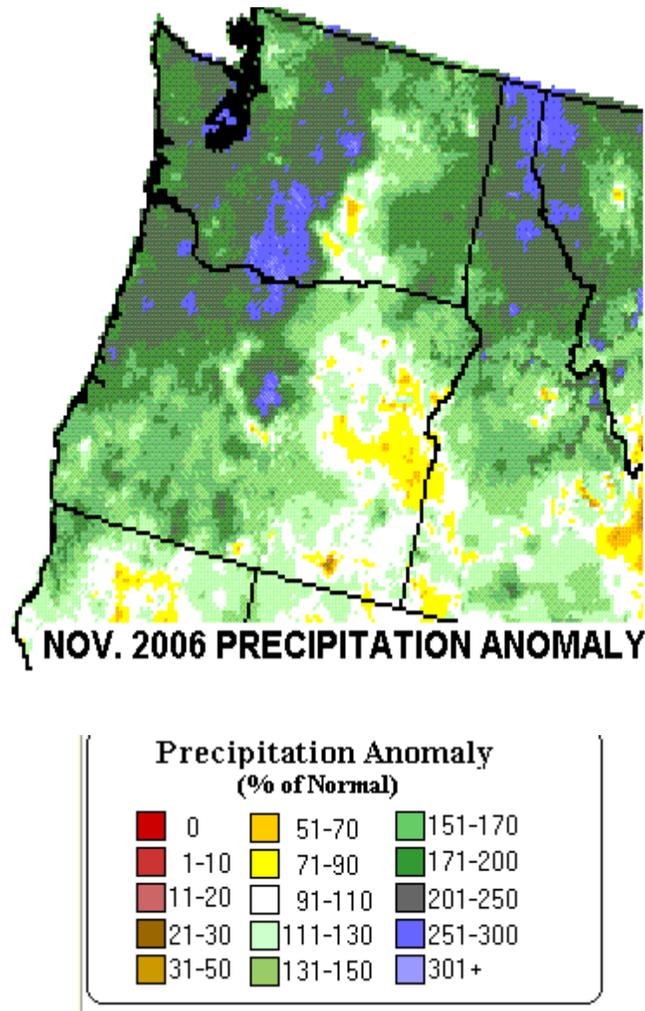


FIGURE 2 – NOVEMBER 2006 PRECIPITATION ANOMALY (COURTESY OF OREGON CLIMATE SERVICE)

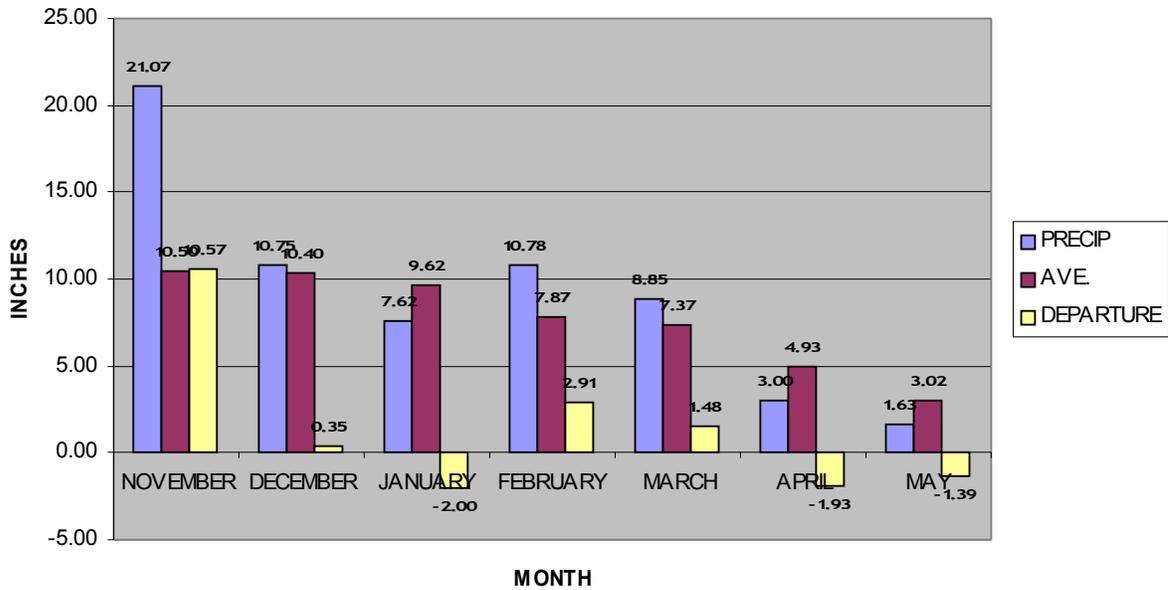
Several areas observed above normal monthly maximum temperatures in May. Some departures from normal include: 3.3 degrees at Marion Forks, 2.8 degrees at Government Camp, 2.4 degrees at the Portland airport, and 2.1 degrees at the Salem airport.

Water year precipitation through May was normal to slightly above normal throughout much of the fire weather district. Some individual station values follow:

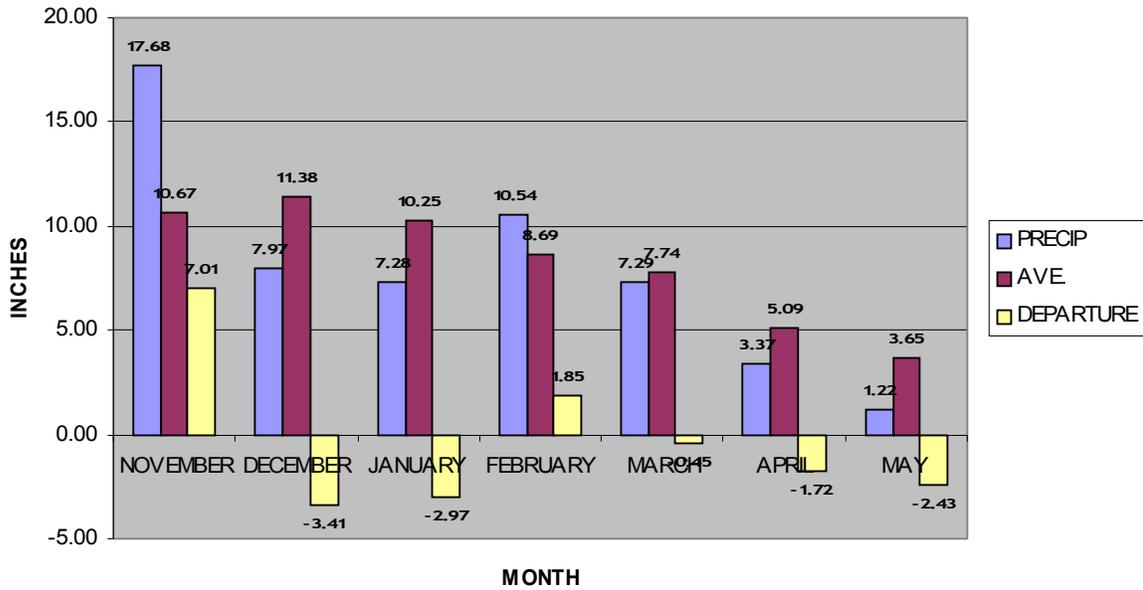
| | | |
|-------------------------------|---------------|-------------|
| LAUREL MOUNTAIN | 128.24 | 116% |
| ASTORIA AIRPORT | 66.99 | 112% |
| OAKRIDGE FISH HATCHERY | 41.14 | 101% |
| PORTLAND AIRPORT | 32.08 | 100% |
| EUGENE AIRPORT | 37.41 | 81% |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2006-2007 WET SEASON ASTORIA

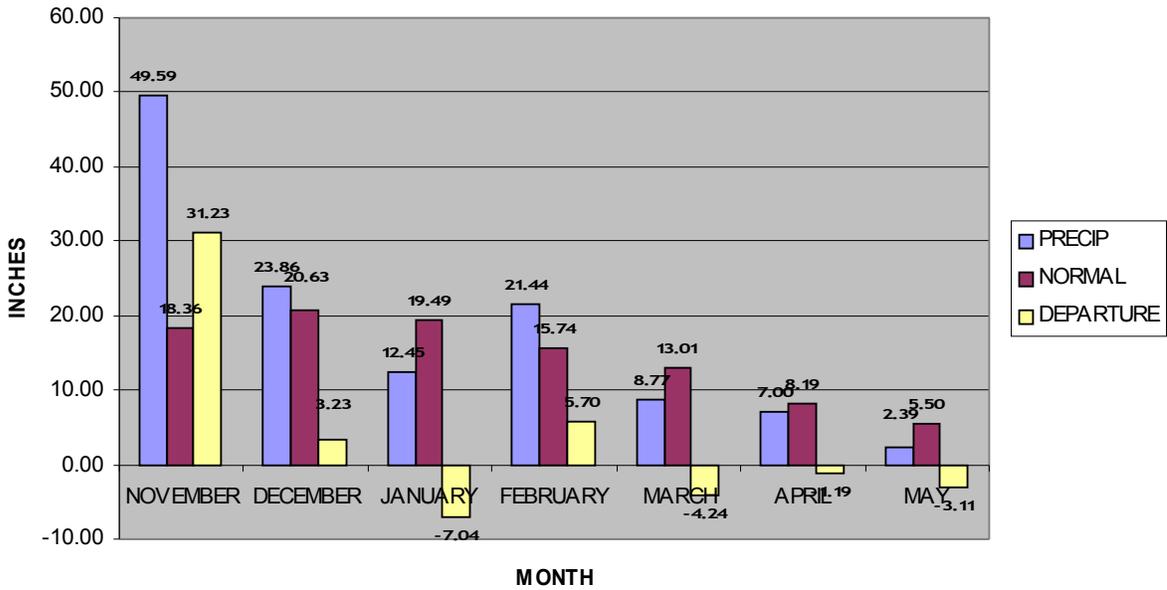


2006-2007 WET SEASON NEWPORT

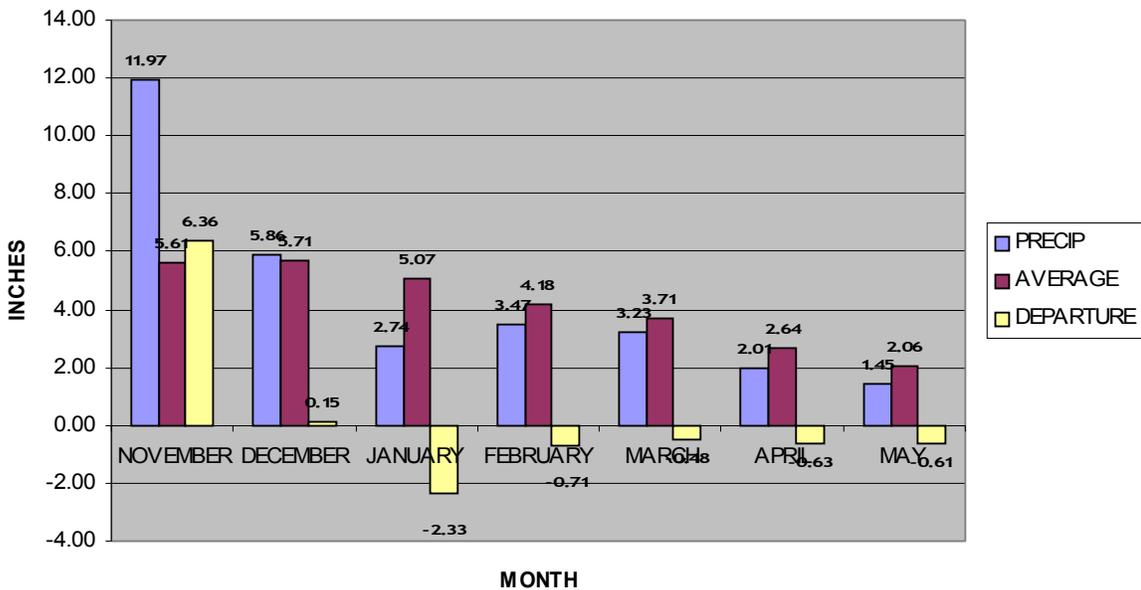


PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2006-2007 WET SEASON LAUREL MOUNTAIN

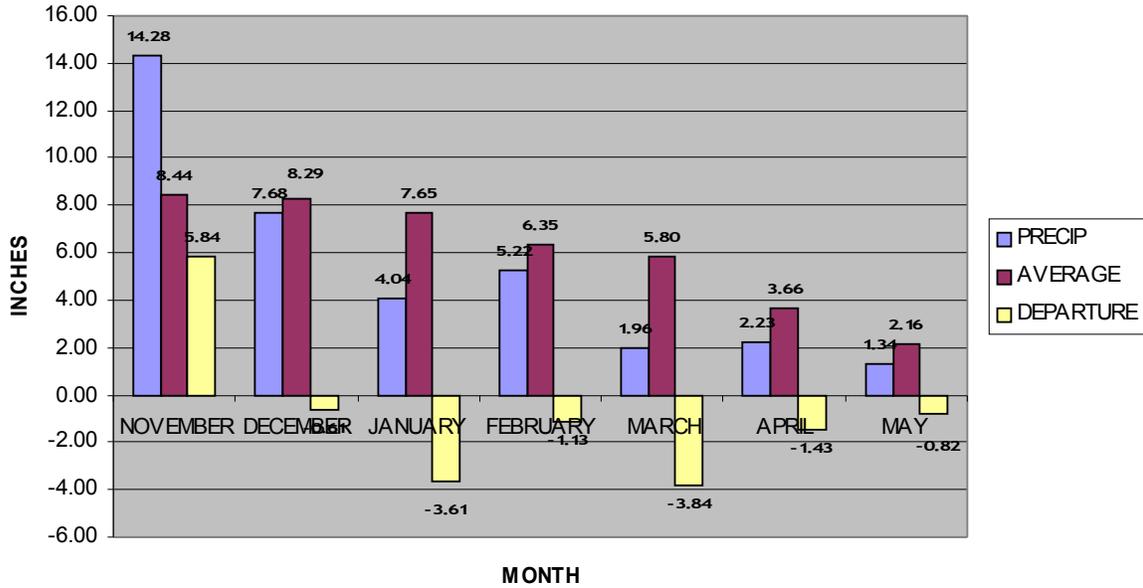


2006-2007 WET SEASON PORTLAND

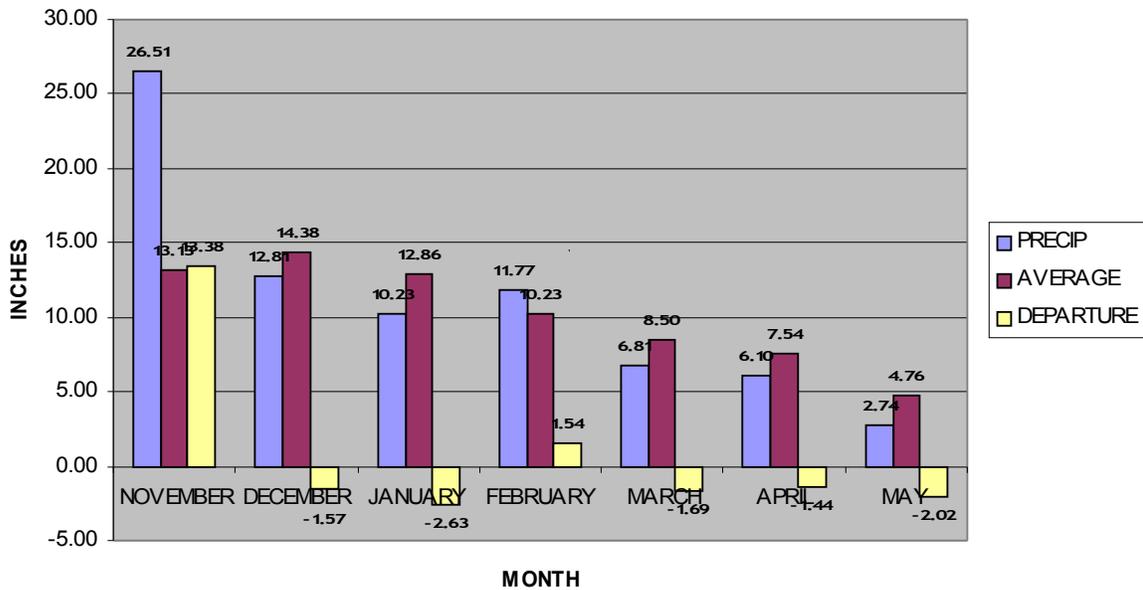


PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2006-2007 WET SEASON EUGENE

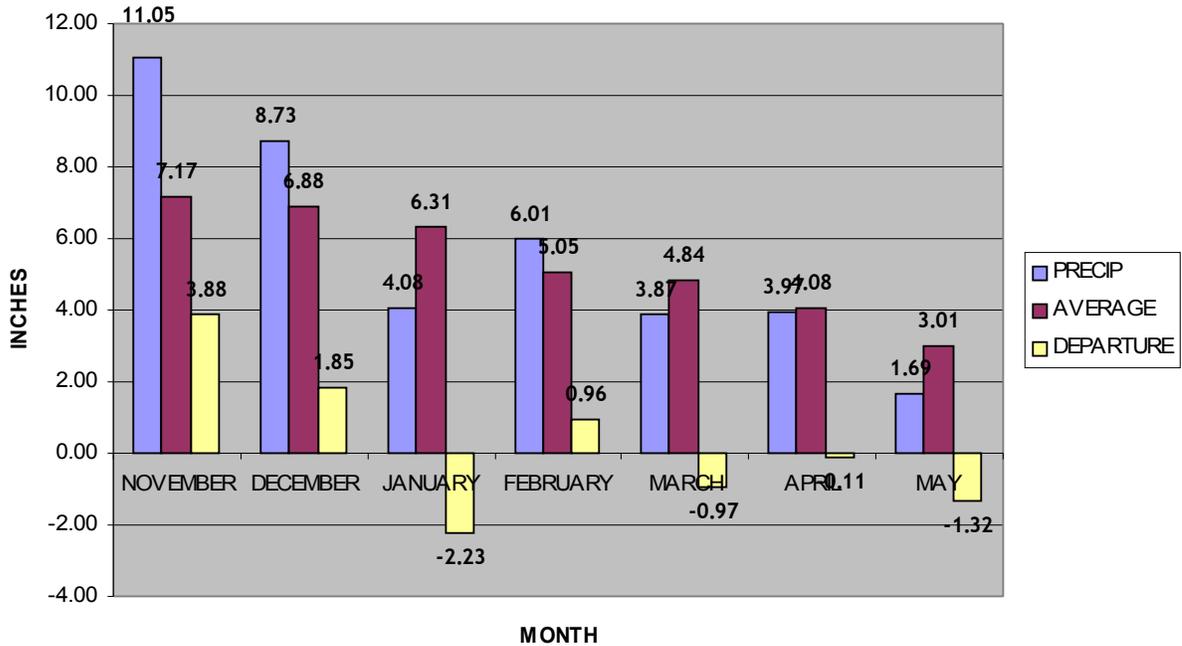


2006-2007 WET SEASON GOVERNMENT CAMP



PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2006-2007 WET SEASON OAKRIDGE



FAST FACTS: A series of strong storm systems from September 29 through October 3 produced substantial rainfall over the district, especially in the North Oregon and South Washington Cascades and foothills. Hamilton RAWS, in zone 660, recorded 2.09 inches of rain on September 30th, 1.89 inches on October 2nd, and 2.17 inches on October 3rd. Log Creek RAWS, in zone 607, received 2.29 inches on September 30th, and 1.81 inches on October 3rd.

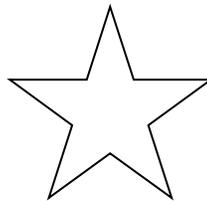
Strong high pressure aloft with a thermal heat low west of the Cascades produced Red Flag conditions July 10th and 11th. Maximum temperatures exceeded 100 degrees at several locations. High temperatures on the 10th included 103 at Stayton, and 102 at Locks, Eagle Creek, and Emigrant, and 101 at Village Creek. Locks hit 103 degrees on the 11th. The only other triple-digit RAWS reading of the season occurred at Trout Creek, where the high was 100 on September 10th. Conversely, high temperatures in the Cascades struggled to reach the 40s during the first week of October. On October 3rd Wanderer's Peak had a high of 40, Trout Lake 41, Boulder Creek 43, Pebble 44, and Yellowstone 46.

On July 10th the average ERC value for the Coast Range zones was 38.6, slightly above the 97th percentile. However, by July 18th, the average ERC value had dropped to 11.6. Nearly all Coast Range RAWS stations had a wetting rain on July 18th. Abernathy and South Fork RAWS picked up one-half inch of rain. Rye Mountain and Miller RAWS exceeded two-thirds of an inch. Miller recorded 0.76 inches on the 19th.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
2006-2007 SNOWPACK DATA (FOR GOVERNMENT CAMP)

The 2006-2007 Government Camp snow-depth data (Figure 3) is shown on page 11. The chart also includes data from 2005-2006 and the normal snow depth. The 2006-2007 snow-fall data showed many peaks and valleys. The first peak occurred in late-November. The snow depth increased from seven inches on the 21st, to 55 inches by the 28th. The Hood River basin had 188 percent of the average snow-water equivalent at the end of November. The snow pack diminished to 30 inches by mid-December, but reached a second peak of 61 inches in early January. However, by the end of January, the Hood River basin had received just 71 percent of its normal precipitation, and 93 percent of the average snow-water equivalent. The snow depth fell from a peak of 61 inches on January 7th, to 36 inches at the end of the month. The third and final peak occurred in early March. Typically, snow depth gradually increases in January and February, and then reaches a peak in early March. In 2007, the snow depth decreased through the mid-February. On the 18th the snow depth was only 19 inches. Ten day later it had increased to 50 inches. A warm and dry spring resulted in rapid snowmelt. The snow depth went from a maximum of 63 inches on March 3rd, to 11 inches on the 20th. The first zero observation happened on April 4th. A little more snow fell in mid-April, but by the 23rd the ground was bare.

Snow cover vanishes, on average, by June 10th. The past three years have been unusual. In 2005, the snow cover was gone by April 19th, but there was not nearly as much snow to melt compared to 2006. The snow lasted one week longer in 2006 compared to 2005.



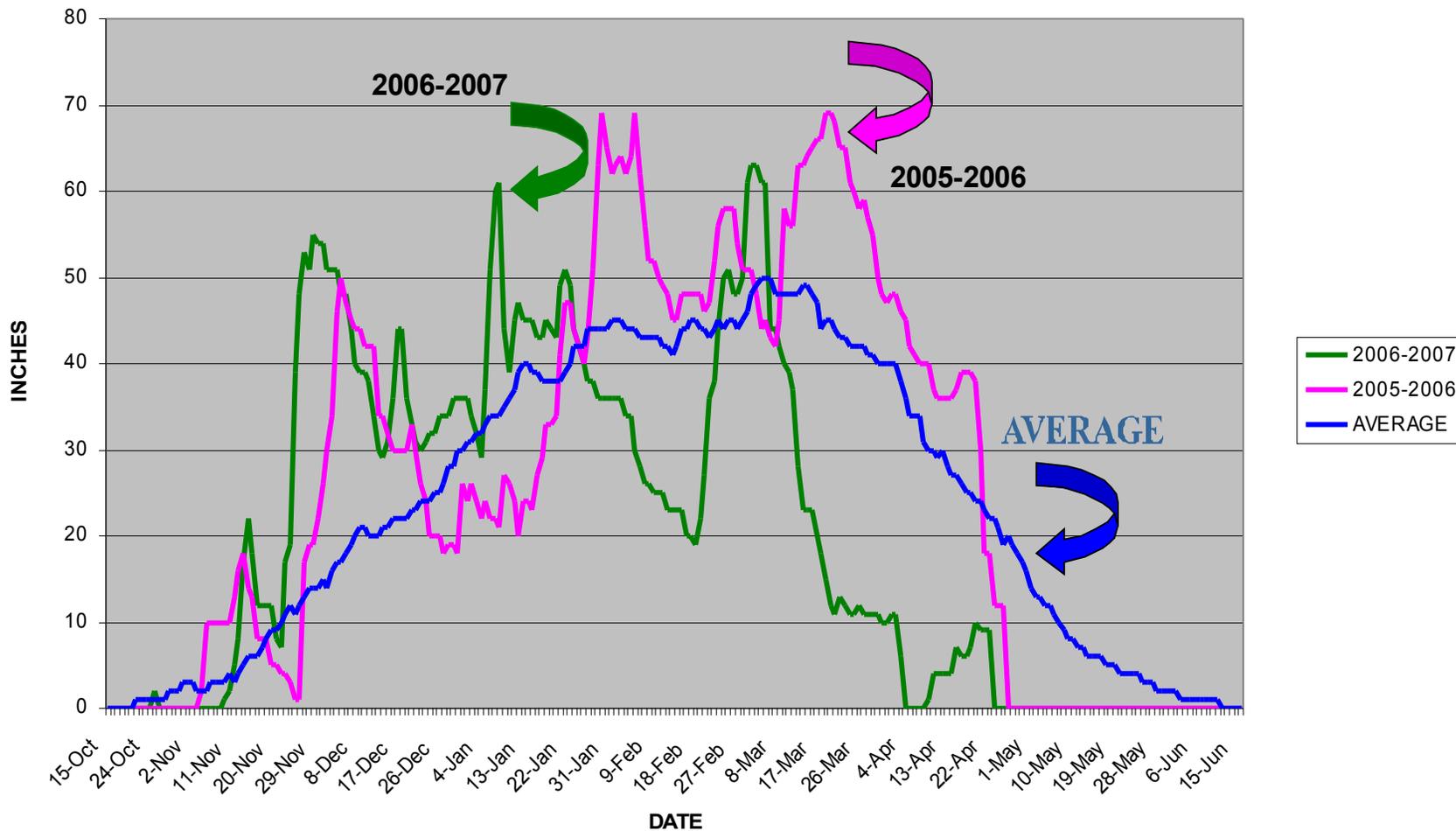
INTERESTING TIDBITS: *According to the Northwest Coordination Center, Oregon wildfires burned 306,197 acres of Forest Service land in 2007. The largest was the Egley Fire in Southeast Oregon, which accounted for 140,359 acres. Washington Forest Service fires burned just 12,221 acres. Last year the Tripod Complex, in the Okanogan-Wenatchee National Forest, burned in excess of 175,000 acres.*

The Oregon Department of Forestry (ODF) recorded 365 lightning-caused fires and 812 human-caused fires during 2007. These fires burned 52,800 acres, which is well above average. The costliest Oregon wildfires included:

| | | |
|--|-----------------------------------|------------------------------|
| <i>Lightning Complex</i> | <i>Warm Springs Agency</i> | <i>\$21.2 million</i> |
| <i>Egley Complex</i> | <i>Burns</i> | <i>\$16.6 million</i> |
| <i>Battle Creek</i> | <i>Wallowa-Whitman</i> | <i>\$14.9 million</i> |
| <i>Monument</i> | <i>Umatilla</i> | <i>\$11.6 million</i> |
| <i>G.W. Fire</i> | <i>Deschutes</i> | <i>\$7.7 million</i> |
| <i>Total costs for Oregon fires (unofficial) in 2007:</i> | | <i>\$122,030,656.</i> |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

FIGURE 3 - GOVERNMENT CAMP SNOWDEPTH



PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
2007 FIRE SEASON LIGHTNING DATA

Table two shows the lightning frequency, by area, for the 2007 season.

TABLE TWO: 2007 LIGHTNING DATA (MAY THROUGH OCTOBER)

| AREA | # LIGHTNING DAYS 2007 | AVE. # DAYS (LAST 14 YEARS) | PERCENT AVE. |
|--------------------------|-----------------------|-----------------------------|---------------|
| ZONES 601/612 | 6 | 7.07 | 84.9% |
| ZONES 602/603 | 6 | 7.29 | 82.3% |
| ZONE 604 | 9 | 8.50 | 105.9% |
| ZONES 605/607/660 | 14 | 12.86 | 108.9% |
| ZONES 606/608 | 12 | 18.00 | 66.7% |

TABLE TWO: 2007 LIGHTNING FREQUENCY. DATA OBTAINED FROM BLM LIGHTNING DETECTION AND NORTHWEST COORDINATION CENTER

An item of interest in the lightning frequency data is the relatively low frequency of occurrence for the Central Oregon Cascades and foothills. There were only 12 lightning days in 2007, the fewest since 2001. It is somewhat unusual to have more lightning days in the North Oregon and South Washington Cascade zones than the Central Oregon Cascade zones. Typically, there is a lightning maximum in May due to a climatological tendency for cold, upper-level lows to move across the Pacific Northwest. This did not occur in 2007. May was generally warm and dry with minimal lightning activity. The only lightning day in May occurred during the first 10 days. The peak spring period was early June. There were two to three lightning days in the Coast Range and Cascades during the period June 1-10. There was slightly more lightning during the most critical part of the 2007 fire season, compared to 2006. The primary lightning episode occurred July 12th, immediately after a wind and low humidity Red Flag event. Climatologically, the first major lightning episode occurs around July 21st. Fortunately, persistent elevated fire danger conditions did not occur. A wetting rain event July 18th and 19th reduced the fuel indices and corresponding dryness levels.

FAST FACTS: *Many stations in the Cascades observed extremely poor humidity recovery during an east wind Red Flag event September 10th and 11th. Humidity recovery values on the 10th included 17% at Wanderer’s Peak, 24% at Log Creek, and 25% at Horse Creek and Canyon Creek. Similar readings were observed on the 11th. The Coast Range exhibited similar poor humidity recovery conditions September 10th and 11th. Rockhouse observed 27% on the 10th and 22% on the 11th. Village Creek had 24% on the 10th.*

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Problem lightning, formerly referred to as episode lightning, was not a major factor in 2007. Normally, there are at least one or two critical fire weather patterns, such as a breakdown of an upper ridge, Haines 6 conditions, or lightning after an extended dry period during the fire season that result in problematic lightning. These isolated events result in the majority of large fires. There was one problematic lightning episode during the 2007 season. The Portland Forecast Office issued Red Flag Warnings for three events during the 2007 season. Two were east-wind episodes, one lasting two days, and the other event was a lightning episode. It is unusual not to have at least one east-wind event in September or October. The most critical fuel conditions have occurred in early September during the past two years.

The lightning criteria for the Portland forecast area were modified over the past couple of seasons in an attempt to better represent the true problem patterns. Dry lightning is hard to forecast and harder still to verify. The Northwest Coordination Center developed a more objective analysis for problem lightning. The general premise is to combine lightning potential with observed and forecast fuel conditions. A Red Flag Warning is warranted when lightning is expected **AND** fuel conditions are forecast to remain moderate or critical during and after the weather event. Also, lightning activity must be scattered, or greater, in coverage.



Figure 4 – Clark Fire Willamette National Forest 2003; Photo courtesy John Saltenberger, NWCC

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
RED FLAG WARNING STATISTICS FOR 2007

Table three shows the Red Flag verification statistics for the 2007 fire season.

TABLE THREE (ALL WARNINGS)

| ZONE | # RFW | CORRECT RFW (A) | INCORRECT RFW (B) | MISSED EVENTS (C) | POD A/(A+C) | CSI A/(A+B+C) | FAR (1-[A/(A+B)]) |
|---------------------|--------------|------------------------|--------------------------|--------------------------|--------------------|----------------------|--------------------------|
| 601 | 2 | 1 | 1 | 0 | 1.00 | 0.50 | 0.50 |
| 612 | 2 | 2 | 0 | 0 | 1.00 | 1.00 | 0 |
| 602 | 4 | 2 | 2 | 0 | 1.00 | 0.50 | 0.50 |
| 603 | 3 | 2 | 1 | 0 | 1.00 | 0.67 | 0.33 |
| 604 | 3 | 3 | 0 | 0 | 1.00 | 1.00 | 0 |
| 605 | 4 | 4 | 0 | 0 | 1.00 | 1.00 | 0 |
| 606 | 3 | 2 | 1 | 0 | 1.00 | 0.67 | 0.33 |
| 607 | 4 | 4 | 0 | 0 | 1.00 | 1.00 | 0 |
| 608 | 3 | 2 | 1 | 0 | 1.00 | 0.67 | 0.33 |
| 660 | 4 | 4 | 0 | 0 | 1.00 | 1.00 | 0 |
| TOTALS (ALL) | 32 | 26 | 6 | 0 | 1.00 | 0.813 | 0.187 |
| LIGHTNING | 7 | 6 | 1 | 0 | 1.00 | 0.857 | 0.143 |
| WIND/RH | 25 | 20 | 5 | 0 | 1.00 | 0.800 | 0.200 |

NUMBER OF WARNED EVENTS: 3
EVENTS PRECEDED BY A WATCH: 2 OR 67%
MISSED EVENTS: 0

NOTE: Refer to the Annual Operating Plan for complete Red Flag criteria.

EVENT LEAD TIMES

Tables 4 and 5 show the respective warning and watch lead times for all events in 2007.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

TABLE FOUR – WARNING LEAD TIMES

| <i>EVENT</i> | <i>RANGE OF LEAD TIMES</i> | <i>AVE. ZONE LEAD TIME</i> |
|--|---|-----------------------------------|
| <i>July 9-10 (Low RH and east wind)</i> | 11 hrs 41 min ZONES 607 and 660 23 hrs 31 min ZONE 604 | 15 HRS 02 MINS |
| <i>July 12-13 (lightning event)</i> | 15 hrs 1 min ZONE 607 16 hrs 1 min ZONES 602 and 605 | 15 HRS 36 MINS |
| <i>September 9 (Low RH and east wind)</i> | 7 hrs 38 min ZONES 603 and 612 28 hrs 38 min ZONES 601 and 602 | 17 HRS 47 MINS |
| <i>September 10* (Low RH and east wind)</i> | 27 hrs 38 min ZONES 603 and 612 44 hrs 38 min ZONE 604 | 35 HRS 18 MINS |
| <i>OVERALL AVE. LEAD TIME</i> | | 20 HRS 21 MINS |

* This was a two-day event under one warning issuance. Therefore, each day was considered one warning and verified separately.

TABLE FIVE – WATCH LEAD TIMES

| <i>EVENT</i> | <i>RANGE OF LEAD TIMES</i> | <i>AVE. ZONE LEAD TIME</i> |
|---|---|-----------------------------------|
| <i>July 9-10 (Low RH and east wind)</i> | 17 hrs 8 min ZONES 607 and 600 28 hrs 58 min zone 604 | 20 HRS 29 MINS |
| <i>July 12-13 (lightning event)</i> | 43 hrs 42 min ZONE 607 44 hrs 42 min ZONES 602 and 605 | 44 HRS 17 MINS |
| <i>July 13 (lightning event)</i> | WATCH ISSUED 1429 PDT JULY 12 VALID JULY 13 | NO WARNING |
| <i>September 8-10 (Low RH and east wind)</i> | NO WATCH ISSUED | NO WATCH ISSUED |
| <i>OVERALL AVE. LEAD TIME</i> | | 36 HRS 24 MINS |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

A few notes on verification and the 2007 events: The overall severity of any fire season is highly correlated with the extent and frequency of critical fire weather patterns during the season. It is not unusual to have an extended dry period during any given fire season. This, in itself, could result in an elevated degree of fire activity, provided the fuel conditions are right. However, to elevate a high fire danger situation to a critical level normally requires an additional weather element, or trigger, to be superimposed on the dryness factor. This additional trigger could be thunderstorms with no appreciable precipitation, an extremely unstable air mass (Haines 6), or a combination of strong wind and low humidity. Red Flag warnings are issued when a combination of critical weather elements exist **WITH** sufficiently dry fuels and severe burning conditions.

Determining lead-time for problematic or dry lightning is highly subjective. The Portland office has made a major effort to get away from the term “dry lightning.” In 2004, a new lightning criteria, “episode lightning”, was introduced to the users. However, the definition of episode lightning was misunderstood. Therefore, in 2005, the phrase “lightning with no appreciable precipitation” was introduced. The general premise was to avoid the subjectivity of determining whether lightning was wet or dry. If the fuel conditions were expected to remain high or critical during and after the lightning event, then a Fire Weather Watch or Red Flag warning was warranted. The Northwest Coordination Center developed a scheme to monitor fuel conditions. The two correlating factors were determined to be Energy Release Component (ERC) and 100-hour fuel moisture. It was found that there were distinct breakpoints of ERC and 100-hour fuel moisture that corresponded to minimal or no large fire potential, an average risk of large fire potential, and a higher than average risk of large fire potential.

It is a given that fires **WILL** occur during or after a lightning episode following an extended dry spell. However, does that fact alone warrant a Red Flag warning? If all the resultant fires remain small and/or initial attack can handle them, was it a critical event? Should one or more resultant lightning fires get big, then it is reasonable to assume the event was critical and a warning justified.

The 2007 Red Flag criteria were unchanged from 2006. It was determined that the 2003 criteria were confusing, especially the wind/low RH parameters. Nearly every zone had its own wind and humidity criteria. It was decided to simplify these criteria by creating distinct areas. The Portland fire weather region was divided into five regions, and Red Flag wind and humidity values were assigned to each region. It was also assumed that if one fire weather zone within a region hit criteria, then, by default, the remaining zones within the region achieved criteria. It is hard to imagine a synoptic-scale east wind event, typical of late spring or late summer, that verifies in the North Oregon Cascade foothills, but **DOES NOT** verify in the adjacent North Oregon Cascades or South Washington Cascades. The main problem continues to be with the RAWS stations. The land agencies have put forth more effort at RAWS maintenance during the past couple of years, but more work needs to be accomplished. Some RAWS sites that were good wind stations in the past, have suffered due to overstory growth, understory expansion, and other environmental factors.

Another problem arises when verifying warnings by zone. Multiple zones may be included in a warning, but some areas may not have good verifying observing stations.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Some zones end up not meeting warning criteria simply because there are no good verification stations. This, in turn, will result in lower Probability of Detection (POD) scores, and higher False Alarm Rates (FAR). Moving RAWS stations may actually hinder verification. There has been a push in the past couple of years for units or districts to conduct seasonal surveys on their RAWS stations and take appropriate action to clear brush, remove trees, etc in order to conform to RAWS site standards.

NFDRS VERIFICATION STATISTICS FOR 2007

National Fire Danger Rating System (NFDRS) forecasts remain a high priority at the Portland office. Users depend on these forecasts for a variety of reasons, such as determining whether to limit or curtail forest activities, updating pocketcards, and determining staffing levels. A Memorandum of Understanding (MOU) between the Pacific Northwest Coordinating Group (PNWCG) and National Weather Service used to exist, that specified forecast performance measures for NFDRS forecasts. These verification standards were based on performance against persistence. The base performance measures were 35 percent improvement over persistence for temperature, 25 percent improvement for humidity, and 10 percent for wind. However, the MOU also called for a goal of 30 percent improvement each year. Thus, the 2005 performance goals were actually 45 percent improvement over persistence for temperature, 33 percent improvement for humidity and 13 percent for wind. At a PNWCG meeting in November 2005, it was determined that the above performance measures were unrealistic. A new MOU, which took effect in 2006, had new NFDRS performance standards. The 35-25-10 performance measures were eliminated, as was the 30 percent annual improvement upon those measures. Instead, a more realistic approach was implemented. Basically, each office was expected to show some degree of annual improvement.

TABLE SIX – 2007 SITE-SPECIFIC NFDRS VERIFICATION

| SITE | TEMPERATURE | | | HUMIDITY | | | WIND | | |
|----------------------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|--------|
| | FCST MAE | PERS. MAE | SCORE | FCST MAE | PERS. MAE | SCORE | FCST MAE | PERS. MAE | SCORE |
| <i>Village Creek</i> | 4.85 | 6.67 | 27.27 % | 9.84 | 12.9 3 | 23.89 % | 1.41 | 1.38 | -2.38% |
| <i>Pebble</i> | 4.78 | 6.58 | 27.40 % | 9.43 | 12.6 4 | 25.36 % | 1.50 | 1.62 | 7.58% |
| <i>Fields</i> | 4.87 | 6.66 | 26.94 % | 10.8 6 | 13.9 7 | 22.24 % | 1.90 | 1.91 | 0.43% |
| <i>South Fork</i> | 3.83 | 6.50 | 41.14 % | 11.1 0 | 17.0 2 | 34.75 % | 1.46 | 1.56 | 6.71% |
| <i>Wanderer's Peak</i> | 4.84 | 6.85 | 29.33 % | 11.6 3 | 15.5 9 | 25.44 % | 1.49 | 1.50 | 0.54% |
| <i>Horse Creek</i> | 4.15 | 5.92 | 29.78 % | 9.75 | 12.7 9 | 23.74 % | 1.22 | 1.33 | 8.04% |
| <i>Yellowston e</i> | 4.71 | 6.95 | 32.29 % | 9.65 | 13.6 0 | 29.03 % | 1.41 | 1.51 | 6.78% |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

The Portland office also provided individual NFDRS forecasts for eight sites: 1) Village Creek, 2) Pebble, 3) Fields, 4) South Fork, 5) Wanderer’s Peak, 6) Horse Creek, 7) Yellowstone, and 8) Canyon Creek. Table six (bottom of previous page) shows the 2007 NFDRS verification stations for the above sites. Canyon Creek was not included due to a lengthy period of bad wind data, and frequent missing observations. Figure 5 is a graphical representation of Table 6.

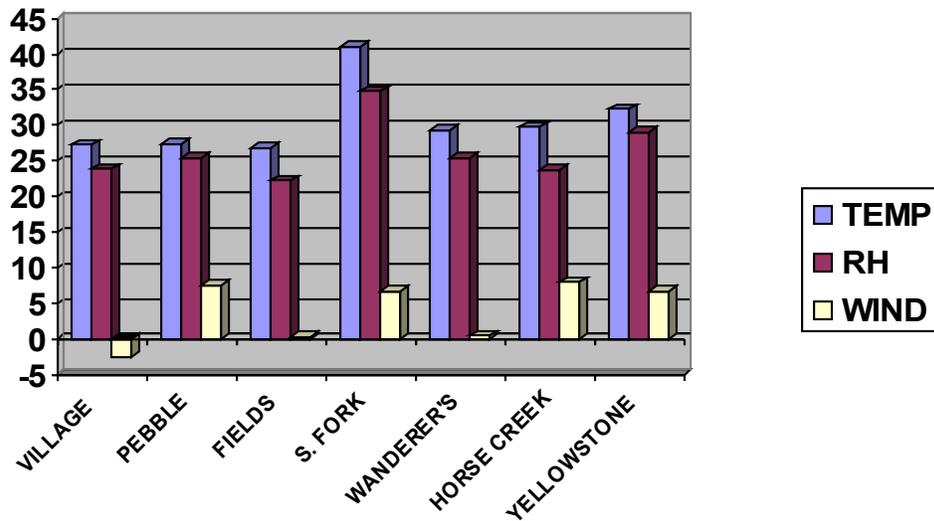


Figure 5 – NFDRS percent improvement over persistence for point forecasts

The following table (Table 7) shows the 2007 NFDRS verification statistics, by area, and by zone.

TABLE SEVEN – 2007 NFDRS VERIFICATION

| ZONE | TEMPERATURE | HUMIDITY | WIND |
|------|-------------|----------|--------|
| ALL | 28.0% | 22.3% | -4.6% |
| 601 | 28.0% | 27.8% | -2.2% |
| 602 | 35.1% | 27.1% | -3.0% |
| 603 | 24.1% | 20.3% | -11.7% |
| 605 | 33.1% | 23.5% | -6.1% |
| 606 | 27.6% | 19.3% | -3.5% |
| 607 | 28.1% | 24.7% | -0.6% |
| 608 | 29.6% | 23.4% | -0.7% |
| 612 | 4.6% | 9.6% | -2.1% |
| 660 | 31.4% | 21.2% | -13.9% |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

A more meaningful verification statistic is the mean absolute error (MAE). The total number of forecasts can skew the improvement percentages. There could be a higher MAE with a smaller forecast sample. This could still give a high improvement score. For instance, there were 9 forecasts in May for zone 612. The forecaster temperature MAE was 5.44 degrees, the persistence MAE was 9.56 degrees, which yielded an improvement over persistence of 43.0 percent. The 43.0 percent appears excellent, but an MAE of 5.44 degrees is not. The lowest MAE for all stations occurred in July, 4.23 degrees. However, the persistence MAE was 5.72 degrees. Thus, the improvement over persistence was 26.1 percent. This would have been below the MOU base standard of 35 percent.

Wind can be a difficult element to forecast due to limited variability. Village Creek and Wanderer's Peak typically do not show much wind. This is especially true for Village Creek, where the median afternoon 10-minute wind speed is just 3 mph. The 90th percentile wind speed is 5 mph. Thus, it is very difficult to beat persistence at Village Creek. Wanderer's Peak used to be a very good wind site, especially for east wind. The median afternoon 10-minute wind speed at Wanderer's Peak used to be 5 mph, with a 75th percentile wind of 7 mph. The median wind speed has decreased during the past few years. Out of 123 forecasts, Wanderer's Peak reported an NFDRS wind speed of 5 mph or greater on just 12 occasions. South Fork has the most wind variability. The median wind speed is 8 mph, and the 90th percentile wind value is 11 mph.

“Big-change” days are crucial to positive NFDRS statistics. These are golden opportunities to make big points over persistence. More frequent marine surges this year created increased forecast difficulty. The forecaster had to predict when the marine layer would dissipate, if at all, especially for sites such as Village Creek, South Fork, and Horse Creek. Large errors occurred if the marine layer persisted one or two hours longer than expected, or cleared earlier.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
STATISTICS FOR AREA ONE (COASTAL STRIP ZONES)

This area is comprised of zones 601 and 612. RAWs that represent the area include:

Cedar Creek, Cannibal Mountain, Goodwin Peak, Huckleberry, Dunes, and Tillamook.

| | TEMPERATURE | | RELATIVE HUMIDITY | | | | FUELS | | PRECIPITATION | | | LTG |
|------------------|--------------|--------------|--|-----------|--------------|-------------|--------------|--------------|---------------|------------|-------------|----------|
| | | | 3 OR MORE RAWs MEET CRITERIA FOR 2 HOURS | | | | | | MEDIAN VALUES | | | |
| DATE | AVE MAX | AVE MIN | AVE MIN | DAYS <26% | AVE RECOVERY | NIGHTS <61% | ERC | 100 HR | DAYS ≥ .01 | DAYS ≥ .10 | DAYS ≥ 0.25 | DAYS |
| May 1-10 | 57.8 | 41.4 | 59.5 | 0 | 93.5 | 0 | 5.3 | 18.7 | 4 | 4 | 3 | 1 |
| 11- 20 | 57.6 | 41.5 | 58.8 | 0 | 90.1 | 2 | 15.0 | 18.0 | 3 | 1 | 1 | 0 |
| 21- 31 | 63.9 | 45.0 | 53.6 | 1 | 88.7 | 2 | 18.0 | 15.3 | 1 | 0 | 0 | 0 |
| June 1-10 | 60.4 | 47.6 | 67.0 | 0 | 91.9 | 1 | 14.6 | 16.6 | 5 | 4 | 1 | 0 |
| 11-20 | 59.6 | 45.0 | 62.7 | 0 | 95.1 | 1 | 12.4 | 17.9 | 2 | 0 | 0 | 0 |
| 21-30 | 62.6 | 46.4 | 59.5 | 0 | 96.0 | 1 | 14.5 | 16.5 | 5 | 3 | 2 | 0 |
| July 1-10 | 71.1 | 51.8 | 53.8 | 0 | 89.3 | 2 | 22.4 | 13.7 | 0 | 0 | 0 | 0 |
| 11-20 | 66.5 | 53.8 | 67.3 | 0 | 95.1 | 1 | 19.6 | 15.4 | 5 | 2 | 2 | 1 |
| 21-31 | 66.4 | 51.7 | 70.1 | 0 | 98.6 | 0 | 7.4 | 21.2 | 4 | 2 | 1 | 0 |
| Aug 1-10 | 67.1 | 51.2 | 63.9 | 0 | 93.2 | 2 | 15.4 | 16.0 | 3 | 0 | 0 | 0 |
| 11-20 | 67.2 | 52.1 | 65.8 | 0 | 96.3 | 0 | 14.5 | 17.6 | 5 | 2 | 2 | 0 |
| 21-31 | 70.7 | 52.4 | 58.2 | 0 | 93.2 | 2 | 12.9 | 18.1 | 1 | 1 | 0 | 0 |
| Sept 1-10 | 72.4 | 51.4 | 50.4 | 2 | 87.1 | 2 | 20.9 | 15.3 | 2 | 1 | 0 | 0 |
| 11-20 | 62.3 | 48.5 | 64.8 | 0 | 93.0 | 1 | 18.9 | 16.5 | 2 | 0 | 0 | 0 |
| 21-30 | 60.4 | 44.0 | 66.0 | 0 | 95.8 | 1 | 20.5 | 17.3 | 4 | 2 | 2 | 0 |
| Oct 1-10 | 54.9 | 46.0 | 80.6 | 0 | 98.8 | 0 | NA | NA | 6 | 6 | 5 | 2 |
| 11-20 | 58.7 | 45.8 | 72.7 | 0 | 98.4 | 0 | NA | NA | 1 | 1 | 0 | 2 |
| AVE/TOT. | 63.51 | 47.98 | 63.22 | 3 | 93.77 | 18 | 15.49 | 16.94 | 53 | 29 | 19 | 6 |
| 2006 | 66.7 | 49.3 | 55.6 | 8 | 85.8 | 41 | 23.1 | 15.0 | 35 | 21 | 16 | 5 |
| 2005 | 64.9 | 49.0 | 63.5 | 2 | 91.5 | 27 | 13.7 | 18.1 | 65 | 36 | 24 | 18 |
| 2004 | 66.2 | 51.0 | 64.5 | 2 | 92.2 | 13 | 9.6 | 18.3 | 55 | 36 | 29 | 13 |
| 2003 | 66.5 | 49.9 | 58.9 | 5 | 88.6 | 22 | 31.4 | 13.8 | 32 | 19 | 14 | 14 |
| 2002 | 65.5 | 49.4 | 63.6 | 5 | 92.0 | 23 | 20.3 | 15.9 | 37 | 20 | 10 | 3 |
| 2001 | 66.0 | 47.8 | 59.3 | 7 | 89.8 | 12 | NA | NA | 46 | 30 | 15 | 4 |
| 2000 | 69 | 51 | 57 | 11 | 89 | 16 | NA | NA | 32 | 15 | 8 | 5 |
| 1999 | 68 | 50 | 60 | 10 | 89 | 19 | NA | NA | 43 | 14 | 4 | 3 |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

DRY SPELL

| 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 |
|---------|---------|---------|---------|----------|---------|---------|---------|
| 29 DAYS | 63 DAYS | 60 DAYS | 53 DAYS | 105 DAYS | 35 DAYS | 22 DAYS | 44 DAYS |

AREA HIGHLIGHTS

OVERVIEW: The coastal zones experienced a cool and moist 2007 season. Precipitation fell in nearly every 10-day period. The only dry 10-day period was July 1-10. There were 19 days of wetting rain. This was slightly more than 2006, and the most since 2005. There were six lightning days. Four of those occurred in October. Surprisingly, lightning was sparse during spring and early summer. Typically, lightning occurs in May due to cold upper level low-pressure areas that tend to move across the area during the spring. May was wet, but lightning occurred on just one day.

The frequency of rainfall prevented fuel conditions from reaching extreme values. The highest 10-day average was 22.4, compared to 45.3 last year. In fact, the average ERC value did not exceed 35. The highest single-day ERC average in 2006 was 50.5. A wet period in mid to late July drove the average ERC value into single-digits. A series of strong storm systems in late September and early October was more typical of late October and early November. However, in 2007, late October and early November were warm and dry.

The “dry spell”, defined as median precipitation of less than one-tenth of an inch, was 29 days, much shorter than the 63 days in 2006, and the shortest since 2001. The precipitation distribution was similar to 2004, except for days of .25 inches or more.

TEMPERATURE

The seasonal average of 63.5 was the coolest since at least 1998.

The warmest 10-day period: September 1-10 (72.4 degrees).

Number of days when the average high was 90 degrees or higher: **0**.

Highest daily average high: **83.8 on July 10th**.

Highest temperatures: *Huckleberry 92 on July 11th.*
Cedar Creek 92 on July 10th.
Tillamook 91 on September 10th.
Cannibal 91 on September 10th.
Dunes 91 on September 9th.

Number of nights the average low was 65 degrees or greater: **0**.

Highest nightly average low: **61.5 on July 10th**.

Highest low temperatures: *Cedar Creek 73 on July 10th.*
Cedar Creek 67 on July 11th.
Huckleberry 67 on July 11th.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Coldest low temperature: *Cedar Creek 33 on May 9th.*
Huckleberry 33 on May 11th.

HUMIDITY

There were three critical daytime humidity days during the season, compared to eight in 2006. Critical daytime humidity was defined as at least three stations recording 25 percent or less humidity for at least two hours on any given day. There were far fewer critical humidity nights this year compared to 2006 (18 vs. 41). The lowest 10-day average maximum humidity was 87.1 percent September 1-10. Last year, the 10-day average for the same time period was 74.9 percent. There were only three 10-day periods when the average maximum humidity was less than 90 percent. Last year there were 12 such periods.

Lowest daily average minimum humidity: **19.3% on September 9th.**
24.5% on May 29th.

Lowest single-station minimum humidity: *Tillamook 12% on September 10th.*
Dunes 12% on September 9th.
Cedar Creek 14% on May 29th
and September 10th.

Number of nights with recovery 55% or less: **1 (September 10th).**

Lowest nighttime average: **48.5% on September 10th.**

Lowest single-station maximum humidity: *Cedar Creek 20% on September 10th.*
Goodwin 23% on September 10th.

PRECIPITATION

Maximum 24-hour (daily) precipitation: **Cedar Creek 1.40 on June 4th.**
Tillamook 1.21 on May 27th.

FUELS

The 2006 season-average ERC of 23.1 was the highest since 2003. The maximum 10-day average was 45.3 September 1-10. The lowest 10-day 100-HR fuel moisture average was 10.5 September 1-10.

Critical ERC Days (40 or higher): **16.**

Highest daily average ERC: **50.5 on Sep 2nd.**

Highest single-station ERC: **Goodwin 58 on Sep 11th and 12th.**

Number of days 100-hr FM was 12 or less: **63. 14 days of 10 or less.**

Lowest daily 100-hr FM: **8.0 on Sep 3rd.**

Lowest single-station value: **Cedar Creek 5 on July 2nd.**

Highest daily 100-hr FM: **29.0 on May 29th.**

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
STATISTICS FOR AREA TWO (COAST RANGE)

This area is comprised of zones 602 and 603. RAWs that represent the area include:

South Fork, Miller, Rye Mountain, Rockhouse1, Wilkinson Ridge, Village Creek, High Point, Clay Creek, and Abernathy Mountain.

| | TEMPERATURE | | RELATIVE HUMIDITY | | | | FUELS | | PRECIPITATION | | | LTG |
|------------------|--------------|--------------|--|-----------|--------------|-------------|--------------|--------------|---------------|------------|-------------|----------|
| | | | 5 OR MORE RAWs MEET CRITERIA FOR 2 HOURS | | | | | | MEDIAN VALUES | | | |
| DATE | AVE MAX | AVE MIN | AVE MIN | DAYS <26% | AVE RECOVERY | NIGHTS <61% | ERC | 100 HR | DAYS ≥ .01 | DAYS ≥ .10 | DAYS ≥ 0.25 | DAYS |
| May 1-10 | 63.4 | 41.6 | 56.8 | 0 | 94.6 | 1 | 2.6 | 19.6 | 4 | 3 | 3 | 1 |
| 11- 20 | 64.8 | 42.5 | 52.3 | 0 | 91.4 | 2 | 13.5 | 13.4 | 2 | 1 | 1 | 0 |
| 21- 31 | 71.1 | 46.4 | 44.9 | 1 | 88.7 | 2 | 18.4 | 15.1 | 2 | 0 | 0 | 0 |
| June 1-10 | 66.9 | 47.8 | 58.8 | 0 | 92.7 | 0 | 20.7 | 13.2 | 5 | 1 | 1 | 2 |
| 11-20 | 66.8 | 45.7 | 54.7 | 0 | 96.3 | 0 | 20.5 | 15.8 | 1 | 0 | 0 | 0 |
| 21-30 | 68.0 | 46.8 | 52.4 | 0 | 95.0 | 1 | 24.0 | 14.0 | 3 | 1 | 1 | 0 |
| July 1-10 | 81.8 | 53.5 | 40.1 | 1 | 86.8 | 3 | 31.1 | 12.5 | 0 | 0 | 0 | 0 |
| 11-20 | 74.3 | 55.1 | 62.6 | 0 | 94.1 | 1 | 26.4 | 14.3 | 4 | 2 | 1 | 1 |
| 21-31 | 74.9 | 53.0 | 57.8 | 0 | 97.4 | 0 | 19.1 | 17.7 | 1 | 0 | 0 | 0 |
| Aug 1-10 | 74.1 | 52.4 | 53.5 | 0 | 90.8 | 2 | 28.2 | 13.3 | 0 | 0 | 0 | 0 |
| 11-20 | 72.8 | 51.9 | 56.2 | 0 | 95.9 | 2 | 25.0 | 15.6 | 4 | 2 | 1 | 0 |
| 21-31 | 77.8 | 53.8 | 46.3 | 1 | 90.3 | 1 | 23.1 | 15.9 | 1 | 0 | 0 | 0 |
| Sept 1-10 | 77.6 | 52.5 | 40.3 | 2 | 83.8 | 2 | 30.1 | 13.6 | 1 | 0 | 0 | 0 |
| 11-20 | 66.2 | 49.0 | 58.2 | 0 | 91.1 | 1 | 27.1 | 15.0 | 3 | 0 | 0 | 0 |
| 21-30 | 63.0 | 44.6 | 60.4 | 0 | 95.9 | 0 | 26.9 | 16.0 | 3 | 2 | 2 | 0 |
| Oct 1-10 | 54.2 | 44.9 | 85.8 | 0 | 99.0 | 0 | NA | NA | 7 | 6 | 2 | 1 |
| 11-20 | 61.1 | 47.9 | 71.0 | 0 | 96.3 | 0 | NA | NA | 1 | 0 | 0 | 1 |
| AVE/TOT. | 69.34 | 48.79 | 56.01 | 5 | 92.95 | 16 | 22.45 | 15.00 | 42 | 18 | 12 | 6 |
| 2006 | 72.9 | 50.1 | 46.3 | 18 | 86.2 | 37 | 30.2 | 13.7 | 30 | 18 | 9 | 8 |
| 2005 | 70.8 | 50.2 | 51.9 | 9 | 88.8 | 23 | 23.1 | 15.8 | 55 | 25 | 13 | 20 |
| 2004 | 71.5 | 50.6 | 54.9 | 8 | 93.4 | 14 | 17.9 | 16.3 | 45 | 29 | 16 | 20 |
| 2003 | 73.0 | 50.4 | 48.5 | 16 | 88.2 | 13 | 33.7 | 13.7 | 25 | 15 | 7 | 14 |
| 2002 | 71.9 | 48.7 | 48.8 | 6 | 90.3 | 22 | 29.2 | 13.9 | 34 | 17 | 7 | 5 |
| 2001 | 75.1 | 48.7 | 44.2 | 19 | 93.3 | 12 | NA | NA | 29 | 17 | 8 | 2 |
| 2000 | 73 | 51 | 55 | 7 | 90 | 12 | NA | NA | 33 | 11 | 4 | 4 |
| 1999 | 72 | 51 | 53 | 5 | 90 | 12 | NA | NA | 33 | 11 | 4 | 3 |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

| DRY SPELL | | | | | | | |
|------------------|---------|---------|---------|---------|---------|---------|---------|
| 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 |
| 38 DAYS | 63 DAYS | 83 DAYS | 53 DAYS | 80 DAYS | 78 DAYS | 32 DAYS | 57 DAYS |

AREA HIGHLIGHTS

OVERVIEW

Similar to the coastal zones, the Coast Range exhibited a fairly benign 2007 fire season. The overall average temperature of 69.3 degrees was the coolest since at least 1994. The average daytime humidity of 56.0 percent was the highest since 1997. There were only five critical humidity days, compared to 18 in 2006. Last year there were five 10-day periods when the average humidity recovery was less than 80 percent. In 2007 this did not occur. The lowest 10-day maximum humidity average in 2007 was 83.8 percent. Rainfall was interspersed throughout the fire season, resulting in a very short dry spell. Above-normal rainfall occurred in June, and there were wet periods in mid-July and mid-August. The 38-day dry spell was the shortest since 2001. There were 12 more days when the median precipitation was greater than .01 inch, but less than one-tenth of an inch, compared to 2006. There were three more wetting rain days.

Fuel conditions this year were not as extreme compared to 2006, which was a common theme throughout the forecast domain. A warmer-than-average May resulted in ERC values reaching near 20. Last year a wet May caused ERC values to drop below 5 by the end of the month. Average ERC values rose steadily during June and early July. The peak 10-day ERC average of 31.1 was reached by July 10th. Last year, the highest 10-day ERC average was 51.3 in early September. Average ERC values decreased in late July, but reached 30 again in early September. The highest daily average ERC was 51.5 on September 25th, compared to 56 in 2006. The biggest difference, and most notable aspect of fire season severity, was the number of critical ERC days. A critical ERC day was defined as an average daily ERC of 45 or greater. There was just one such day in 2007, compared to 31 in 2006.

Lightning frequency was slightly less compared to 2006. There were six lightning days in 2007, compared to eight last year. Only one lightning day occurred during the main part of the fire season. The rest of the lightning days took place in the spring and early fall.

TEMPERATURE

The seasonal average of 69.3 was the coolest since at least 1994.

The warmest 10-day period: **July 1-10 (81.8 degrees).**

Number of days when the average high was 90 degrees or higher: **3.**

Highest daily average high: **94.8 on September 10th.**

Highest temperatures: *Village Creek 101 on July 10th.*
Rye Mountain 99 on May 14th and July 10th.
Wilkinson 99 on July 10th.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Number of nights the average low was 65 degrees or greater: **0.**

Highest nightly average low: **63.3 on July 11th.**
63.2 on July 10th.

Highest low temperatures: **Rockhouse 74 on July 11th.**
Abernathy Mtn. 71 on July 11th.
South Fork 70 on July 11th.

Coldest low temperatures: **South Fork 32 on May 3rd.**
High Point 33 on May 3rd.
Village Creek 33 on May 4th.
South Fork 33 on May 9th.

HUMIDITY

There were 5 critical daytime humidity days during the season, compared to 18 in 2006. Critical daytime humidity was defined as at least five stations recording 25 percent or less humidity for at least two hours on any given day. There were far fewer critical humidity nights this year compared to 2006. The lowest 10-day average minimum humidity did not fall below 40 percent this season. Last year, there were seven 10-day periods when the average daytime humidity was 40 percent or less, and one 10-day period of less than 30 percent.

Lowest daily average minimum humidity: **14.7% on September 10th.**
19.2% on May 29th.

Lowest single-station minimum humidity: **Rockhouse 10% on September 10th.**
Village Creek 10% on September 10th.
Clay Creek and Rye Mountain 12% on September 10th.

Number of nights with recovery 55% or less: **4.**

Lowest nighttime average: **35.2% on September 10th.**

Lowest single-station maximum RH: **Rockhouse 22% on September 11th.**
Village Creek 24% on September 10th.
Rockhouse 27% on September 11th.
South Fork 27% September 10th, 11th.

PRECIPITATION

Maximum 24-hour (daily) precipitation: **Abernathy Mtn. 2.54 on August 20th.**
Clay Creek 2.02 on September 30th.
Village Creek 1.96 on September 30th.

FUELS

The 2007 season-average ERC of 22.5 was the lowest since 2004. The season average was comparable to 2005. Average ERC values were near 30 as late as the end of September, but a series of cool, wet storm systems from the end of September through the second week of October brought fuel conditions to the point of no return.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

| | |
|--|--|
| Critical ERC Days (45 or higher): | 1, which occurred on September 25th. |
| Highest daily average ERC: | 51.5 on September 25th. |
| Highest single-station ERC: | <i>Rockhouse 67 on September 9th and 25th. Rockhouse 64 on September 11th.</i> |
| Highest single-station ERC other than Rockhouse: | 53 Village Creek on Sept. 11th. |
| Number of days 100-hr FM was 10 or less: | 10. Days of 8 or less: 1 |
| Lowest daily 100-hr FM: | 8.3 on September 11th. |
| Lowest single-station value: | <i>Rockhouse 5 on September 11th. Rockhouse 6 on July 11th.</i> |
| Highest daily 100-hr FM: | <i>28.8 on April 12th. 27.5 on May 3rd. Fire Season – 23.2 on July 21st.</i> |

NOTES: Miller RAWS recorded 0.60 inches of rainfall on July 20th, followed by another 0.76 inches on the 21st. This wet period resulted in an average ERC of 18 on July 19th, and then down to 9.3 on the 20th, followed by an average of 9.8 on the 21st. Average ERC values once again exceeded 25 on July 27th.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
STATISTICS FOR AREA THREE (SOUTH WASHINGTON CASCADES, NORTH OREGON CASCADES, AND FOOTHILLS)

This area is comprised of zones 605, 607 and 660. RAWs that represent the area include:

Log Creek, Red Box Bench, Horse Creek, Eagle Creek, Blue Ridge, Elk Rock, Trout Lake, Canyon Creek, Stayton, Hamilton, Locks, Dry Creek, and Wanderer's Peak.

| | TEMPERATURE | | RELATIVE HUMIDITY | | | | FUELS | | PRECIPITATION | | | LTG |
|------------------|--------------|--------------|--|-----------|--------------|-------------|--------------|--------------|---------------|------------|-------------|-----------|
| | | | 7 OR MORE RAWs MEET CRITERIA FOR 2 HOURS | | | | | | MEDIAN VALUES | | | |
| DATE | AVE MAX | AVE MIN | AVE MIN | DAYS <26% | AVE RECOVERY | NIGHTS <61% | ERC | 100 HR | DAYS ≥ .01 | DAYS ≥ .10 | DAYS ≥ 0.25 | DAYS |
| May 1-10 | 59.5 | 39.4 | 48.4 | 0 | 93.0 | 0 | 7.3 | 15.9 | 4 | 3 | 1 | 0 |
| 11- 20 | 63.0 | 41.5 | 44.0 | 1 | 86.2 | 1 | 17.1 | 12.1 | 4 | 1 | 1 | 1 |
| 21- 31 | 68.1 | 44.4 | 41.6 | 2 | 82.9 | 3 | 19.3 | 14.8 | 3 | 1 | 1 | 0 |
| June 1-10 | 64.7 | 47.5 | 55.8 | 0 | 88.9 | 0 | 19.2 | 14.6 | 6 | 3 | 3 | 3 |
| 11-20 | 64.1 | 44.3 | 51.9 | 0 | 93.8 | 0 | 16.0 | 16.4 | 4 | 0 | 0 | 0 |
| 21-30 | 66.9 | 45.6 | 46.8 | 1 | 88.8 | 1 | 22.5 | 13.2 | 4 | 3 | 1 | 1 |
| July 1-10 | 80.6 | 53.7 | 35.3 | 1 | 85.2 | 1 | 31.3 | 11.6 | 0 | 0 | 0 | 0 |
| 11-20 | 75.5 | 56.8 | 53.1 | 1 | 87.7 | 1 | 32.1 | 12.1 | 4 | 1 | 1 | 2 |
| 21-31 | 74.2 | 52.3 | 50.9 | 1 | 94.7 | 0 | 24.6 | 15.9 | 2 | 0 | 0 | 0 |
| Aug 1-10 | 71.6 | 51.4 | 49.4 | 1 | 91.1 | 2 | 31.9 | 12.9 | 1 | 0 | 0 | 0 |
| 11-20 | 71.1 | 49.5 | 48.7 | 0 | 91.2 | 1 | 30.1 | 13.9 | 3 | 2 | 2 | 0 |
| 21-31 | 75.8 | 51.9 | 41.7 | 1 | 86.8 | 2 | 26.1 | 15.5 | 1 | 0 | 0 | 2 |
| Sept 1-10 | 74.3 | 50.8 | 39.4 | 3 | 83.2 | 3 | 30.0 | 14.2 | 1 | 1 | 1 | 0 |
| 11-20 | 66.1 | 47.5 | 51.0 | 1 | 86.2 | 2 | 29.0 | 14.2 | 1 | 1 | 0 | 2 |
| 21-30 | 60.0 | 41.3 | 58.5 | 0 | 94.6 | 0 | 23.4 | 17.2 | 3 | 2 | 2 | 1 |
| Oct 1-10 | 50.8 | 41.6 | 81.3 | 0 | 97.7 | 0 | NA | NA | 6 | 5 | 4 | 1 |
| 11-20 | 60.3 | 44.7 | 66.4 | 0 | 91.5 | 0 | NA | NA | 1 | 1 | 1 | 1 |
| AVE/TOT. | 67.45 | 47.31 | 50.84 | 13 | 89.62 | 17 | 23.99 | 14.30 | 48 | 24 | 16 | 14 |
| 2006 | 71.1 | 48.9 | 43.3 | 30 | 82.1 | 45 | 27.7 | 14.3 | 35 | 24 | 10 | 15 |
| 2005 | 67.8 | 47.8 | 50.4 | 15 | 88.4 | 29 | 20.2 | 16.2 | 61 | 38 | 19 | 18 |
| 2004 | 68.5 | 49.3 | 51.5 | 14 | 87.0 | 33 | 17.9 | 16.1 | 57 | 37 | 22 | 28 |
| 2003 | 70.1 | 48.7 | 46.9 | 27 | 84.7 | 25 | 32.2 | 13.5 | 33 | 23 | 13 | 15 |
| 2002 | 68.5 | 47.2 | 48.8 | 13 | 86.5 | 30 | 29.7 | 13.4 | 40 | 22 | 9 | 11 |
| 2001 | 66.1 | 46.9 | 55.7 | 4 | 89.0 | 23 | NA | NA | 42 | 23 | 25 | 7 |
| 2000 | 69 | 49 | 52 | 16 | 87 | 17 | NA | NA | 22 | 13 | 8 | 3 |
| 1999 | 68 | 48 | 52 | 15 | 82 | 22 | NA | NA | 36 | 18 | 7 | 10 |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
AREA HIGHLIGHTS

| DRY SPELL | | | | | | | |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 |
| 31 DAYS | 48 DAYS | 37 DAYS | 53 DAYS | 77 DAYS | 70 DAYS | 32 DAYS | 44 DAYS |

OVERVIEW

This area was also cooler and more moist than 2006. The overall average high temperature of 67.5 was nearly four degrees cooler than last year, and the coolest since 2001. The warmest 10-day average maximum temperature this year was 80.6 degrees, during the period July 1-10. Last year the warmest 10-day average was 82.1 degrees. There were 13 critical humidity days, which is about average. The 17 critical humidity nights was the fewest since 2000. Precipitation was interspersed throughout the season, especially in June, mid-July and mid-August. Consequently, the 31-day dry spell was the shortest since 1999 (30 days). The dry spell began on July 19th and ended on August 19th. The frequency of non-wetting rain precipitation was similar to 2006, but there were six more wetting rain days in 2007.

Fuel conditions this year were not as extreme compared to 2006. Average ERC values were near 20 by early June. Last year, an extremely wet period in late May drove average ERC values below 5. Average 10-day ERC values hovered around 30 through much of July, dipped slightly at the end of July, and then returned to around 30 from early August through mid-September. The highest 10-day average was 32.1, well below the 53.5 of last year. Critical ERC conditions were met on just one day, compared to 35 in 2006. The lowest 10-day average 100-hour fuel moisture value was 11.6 in early July. Last year there were three 10-day periods when the 100-hour fuel moisture value was 10 or less.

Lightning frequency was similar to 2006. One-third of the lightning days occurred in the spring, and another third took place in early fall. There was one Red Flag lightning event, July 12-13. This was preceded two days earlier by an east wind episode.

TEMPERATURE

The seasonal average of 67.5 was the coolest 2001.

The warmest 10-day period: **July 1-10 (80.6 degrees).**

Number of days when the average high was 90 degrees or higher: **4.**

Highest daily average high: **94.1 on July 10th.**
93.8 on July 11th.

Highest temperatures: **Stayton 103 on July 10th.**
Locks 103 on July 11th.
Eagle Creek 102 on July 10th.
Locks 102 on July 10th.

Number of nights the average low was 65 degrees or greater: **1, on July 11th.**

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

| | |
|------------------------------|--|
| Highest nightly average low: | 68.8 on July 11th. |
| Highest low temperatures: | <i>Horse Creek 75 on July 11th. Canyon Creek 73 on July 11th. Log Creek 73 on July 11th. Canyon Creek 72 on August 20th. Hamilton 72 on July 11th. Log Creek 72 on July 10th.</i> |
| Coldest low temperature: | <i>Wanderer's Peak 27 on May 3rd and 5th. Blue Ridge 29 on May 3rd and 5th. Red Box Bench 29 on May 3rd.</i> |

HUMIDITY

There were 13 critical daytime humidity days during the season, compared to 30 in 2006. Critical daytime humidity was defined as at least seven stations recording 25 percent or less humidity for at least two hours on any given day. There were far fewer critical humidity nights this year compared to 2006 (17 vs. 45). The lowest 10-day average minimum humidity was 35.3 percent July 1-10. This coincided with the lowest 10-day average 100-hr fuel moisture. There were five 10-day periods in 2006 when the average daytime humidity was 35 percent or less. This year there was just one 10-day period.

| | |
|---|--|
| Lowest daily average minimum humidity: | <i>12.3% on September 10th. 15.4% on September 9th. 15.9% on September 11th.</i> |
| Lowest single-station minimum humidity: | <i>Wanderer's Peak 9% on Sept. 8th. Wanderer's Peak 10% on July 25th. Eagle Creek 10% on Sept. 10th.</i> |
| Number of nights with recovery 55% or less: | 6. |
| Lowest nighttime average: | <i>31.0% on September 10th. 36.0% on September 11th. 42.4% on July 11th.</i> |
| Lowest single-station maximum RH: | <i>Wanderer's Peak 12% on Sept. 11th. Wanderer's Peak 17% on Sept. 10th. Horse Creek 22% on Sept. 11th. Elk Rock 23% on Sept. 11th.</i> |

PRECIPITATION

| | |
|--|--|
| Maximum 24-hour (daily) precipitation: | <i>Log Creek 2.29 on September 30th. Locks 2.28 on October 3rd. Hamilton 2.22 on August 20th. Hamilton 2.17 on October 3rd.</i> |
|--|--|

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

FUELS

The 2007 season-average ERC of 24.0 was about 10 percent lower than 2006. The maximum 10-day average was 32.1 July 1-10. A wet period during the early and mid-June drove the average ERC value to 7.8 on the 15th. The average ERC value did not exceed 25 until June 23rd.

| | |
|--|--|
| Critical ERC Days (45 or higher): | 1 (September 25th). |
| Highest daily average ERC: | 45.5 on September 25th. |
| Highest single-station ERC: | Blue Ridge 63 on September 9th. Locks 56 on July 11th. Wanderer's Peak 56 on September 12th. |
| Number of days 100-hr FM was 10 or less: | 16. 8 or less: 4. |
| Lowest daily 100-hr FM: | 7.8 on July 11th and 12th. |
| Lowest single-station value: | Wanderer's Peak 5 on June 3rd, and September 12-13. |
| Highest daily 100-hr FM: | 27.8 on March 22nd. Fire-Season: 24.4 on September 30th. |

NOTES: Questionable humidity and dew point readings at Wanderer's Peak in May and June. There were frequent single-digit humidity readings. Hamilton and Canyon Creek RAWS started operating in late June. There was sporadic data from Canyon Creek RAWS through early September. Data became more reliable from September 3rd through the end of the fire season.

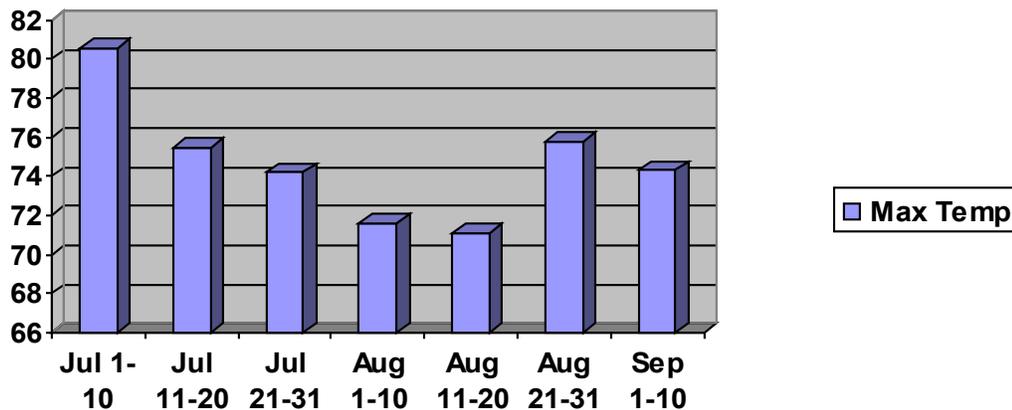


FIGURE 6 – 10-DAY AVERAGE MAX. TEMPERATURES ZONES 605, 607, AND 660

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
STATISTICS FOR AREA FOUR (CENTRAL CASCADES AND FOOTHILLS)

This area is comprised of zones 606 and 608. RAWs that represent the area include:

Boulder Creek, Yellowstone, Trout Creek, Brush Creek, Pebble, Fields, and Emigrant.

| DATE | TEMPERATURE | | RELATIVE HUMIDITY | | | | FUELS | | PRECIPITATION | | | LTG |
|------------------|--------------|--------------|-------------------|-----------|--------------|-------------|--------------|--------------|---------------|------------|-------------|-----------|
| | AVE MAX | AVE MIN | AVE MIN | DAYS <26% | AVE RECOVERY | NIGHTS <61% | ERC | 100 HR | DAYS ≥ .01 | DAYS ≥ .10 | DAYS ≥ 0.25 | DAYS |
| May 1-10 | 60.5 | 38.5 | 52.1 | 0 | 93.1 | 1 | 5.7 | 17.7 | 4 | 4 | 2 | 0 |
| 11- 20 | 64.8 | 41.8 | 45.0 | 2 | 87.6 | 1 | 17.4 | 12.2 | 4 | 1 | 1 | 0 |
| 21- 31 | 70.4 | 44.1 | 39.3 | 2 | 85.7 | 2 | 19.1 | 14.3 | 2 | 1 | 0 | 0 |
| June 1-10 | 66.4 | 46.1 | 52.3 | 0 | 90.9 | 0 | 17.0 | 14.9 | 6 | 4 | 2 | 3 |
| 11-20 | 70.5 | 44.9 | 39.6 | 0 | 90.6 | 1 | 17.9 | 14.4 | 0 | 0 | 0 | 0 |
| 21-30 | 69.3 | 44.5 | 41.8 | 2 | 91.9 | 1 | 26.0 | 12.2 | 2 | 2 | 2 | 0 |
| July 1-10 | 83.7 | 52.9 | 33.8 | 1 | 87.3 | 1 | 31.6 | 12.1 | 0 | 0 | 0 | 0 |
| 11-20 | 77.3 | 54.9 | 47.7 | 0 | 91.2 | 1 | 32.7 | 12.2 | 3 | 2 | 2 | 2 |
| 21-31 | 79.4 | 51.9 | 42.5 | 0 | 96.8 | 0 | 31.1 | 14.2 | 1 | 0 | 0 | 0 |
| Aug 1-10 | 77.1 | 49.7 | 36.4 | 0 | 89.2 | 2 | 40.0 | 11.3 | 0 | 0 | 0 | 0 |
| 11-20 | 74.1 | 49.1 | 43.6 | 1 | 88.9 | 1 | 39.1 | 12.2 | 2 | 2 | 2 | 0 |
| 21-31 | 79.8 | 52.6 | 36.6 | 2 | 87.0 | 2 | 33.7 | 14.2 | 0 | 0 | 0 | 2 |
| Sept 1-10 | 78.2 | 50.3 | 32.7 | 3 | 80.4 | 3 | 40.0 | 12.3 | 1 | 1 | 1 | 0 |
| 11-20 | 67.6 | 46.7 | 44.0 | 2 | 84.7 | 1 | 41.3 | 12.0 | 1 | 0 | 0 | 2 |
| 21-30 | 62.9 | 40.6 | 48.2 | 3 | 87.9 | 1 | 40.3 | 12.9 | 3 | 2 | 2 | 1 |
| Oct 1-10 | 54.0 | 42.3 | 69.8 | 0 | 95.3 | 1 | NA | NA | 5 | 5 | 5 | 1 |
| 11-20 | 62.9 | 44.9 | 56.2 | 0 | 90.6 | 0 | NA | NA | 1 | 1 | 1 | 1 |
| AVE/TOT. | 70.52 | 46.81 | 44.80 | 18 | 89.36 | 19 | 28.86 | 13.27 | 35 | 25 | 20 | 12 |
| 2006 | 73.9 | 48.6 | 39.6 | 37 | 82.0 | 42 | 29.4 | 13.5 | 33 | 25 | 16 | 17 |
| 2005 | 70.5 | 47.3 | 45.6 | 20 | 88.7 | 29 | 23.7 | 15.6 | 58 | 36 | 18 | 19 |
| 2004 | 71.8 | 49.0 | 45.6 | 19 | 86.5 | 30 | 23.3 | 14.8 | 43 | 26 | 20 | 24 |
| 2003 | 73.4 | 49.0 | 42.3 | 43 | 83.5 | 29 | 38.8 | 12.2 | 30 | 19 | 6 | 17 |
| 2002 | 72.4 | 47.4 | 40.7 | 29 | 84.6 | 43 | 37.5 | 12.2 | 30 | 14 | 9 | 13 |
| 2001 | 73.5 | 47.8 | 38.0 | 36 | 83.5 | 40 | NA | NA | 35 | 29 | 12 | 11 |
| 2000 | 75 | 50 | 42 | 21 | 85 | 13 | NA | NA | 19 | 12 | 6 | 7 |
| 1999 | 73 | 50 | 43 | 15 | 81 | 18 | NA | NA | 34 | 12 | 4 | 9 |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

| DRY SPELL | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 | 2000 |
| 2007 FIRE SEASON OVERVIEW | | | | | | | |
| 30 DAYS | 89 DAYS | 51 DAYS | 73 DAYS | 67 DAYS | 51 DAYS | 22 DAYS | 57 DAYS |

AREA HIGHLIGHTS

OVERVIEW

Similar to the rest of the forecast district, this area experienced a slightly cooler and wetter fire season, compared to 2006. The overall average high temperature of 70.5 degrees equaled the 2005 average, which was the coolest since at least 1994. The warmest daily average high temperature was 96.9 degrees on July 10th. This was almost three degrees cooler than the highest daily average of 2006. The overall average daytime humidity was five percent higher than the 2006 value. There were a couple of hot spells during the fire season, but these were of short duration. In 2006, the 10-day average high temperature was 80 degrees or more from July 11th through August 20th, followed by another hot and dry 10-day period in early September. This year, there was just one 10-day period when the average high was 80 degrees or higher. Frequent periods of onshore low-level flow resulted in fewer critical humidity nights. There were 19 critical humidity nights in 2007, versus 43 in 2006. The lowest 10-day nighttime humidity was 80.4 percent September 1-10, and the only 10-day period of 80 percent or less. Last year there were six such periods, with three of those below 70 percent. There were 25 percent more wetting rain days this year. The dry spell was 30 days, from July 20th through August 18th.

The overall average ERC and 100-hour fuel moisture values were nearly identical to the 2006 averages. However, there were vastly different seasonal profiles. Average ERC values reached 20 in late May, dipped a little in early June, and then showed a steady climb through mid-July. Last year, average ERC values of 20 occurred in mid-May, but fell to near zero in June. The prolonged hot and dry spell last year resulted in average ERC values over 60. The highest 10-day average this year was 41.3. There were 36 critical ERC days in 2006, but a mere 4 this year. There were 27 days when the average 100-hr fuel moisture content was 10 percent or less, well shy of the 56 days last year.

Lightning frequency was less than last year (12 days versus 17 days). More than half of the lightning days occurred from late August through mid-October. There was one Red Flag lightning event for this area.

TEMPERATURE

The seasonal average of 70.5 was the coolest since 2005.

The warmest 10-day period: **July 1-10 (83.7 degrees).**

Number of days when the average high was 90 degrees or higher: **6.**

Highest daily average high: **96.9 on July 10th.**

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

93.3 on August 29th.

Highest temperatures: *Emigrant 102 on July 10th.*
Trout Creek 100 on September 10th.
Fields 99 on July 10th.

Number of nights the average low was 65 degrees or greater: **1, on July 11th.**

Highest nightly average low: **67.3 on July 11th.**

Highest low temperatures: *Yellowstone 72 on July 11th.*
Emigrant 70 on July 10th.
Fields 70 on July 11th.

Coldest low temperature: *Boulder Creek 27 on May 14th.*
Boulder Creek 28 on September 24th.
Pebble 29 on May 28th.
Yellowstone 29 on May 5th.

HUMIDITY

There were 18 critical daytime humidity days during the season, compared to 37 in 2006. Critical daytime humidity was defined as at least four stations recording 25 percent or less humidity for at least two hours on any given day. The lowest 10-day average minimum humidity was 32.7 percent September 1-10. There were no 10-day minimum humidity averages of 30 percent or less. Last year there were five such periods.

Lowest daily average minimum humidity: *11.1% on September 10th.*
14.6% on September 9th.

Lowest single-station minimum humidity: *Fields 7% on May 14th and Sept. 10th.*
Emigrant 8% on May 14th.
Boulder Creek 9% on May 14th and September 10th.

Number of nights with recovery 55% or less: **5.**

Lowest nighttime average: *33.0% on September 10th.*
34.4% on September 9th.

Lowest single-station maximum RH: *Fields 13% on September 10th.*
Fields 18% on September 9th.

PRECIPITATION

Maximum 24-hour (daily) precipitation: *Yellowstone 2.35 on September 30th.*
Trout Creek 1.76 on September 30th.
Pebble 1.34 on October 3rd.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

FUELS

The 2007 season-average ERC was 28.9 or one-half point lower than the 2007 average. The daily-average ERC value reached 35 on June 3rd, but fell to 1 on June 7th. The average ERC values rebounded to 30 by June 26th, and then peaked at 41.8 on July 14th. Two days of wetting rain from July 11th through the 20th drove the average ERC value down to 10 on July 18th. The big difference this year compared to last year was the extent and duration of critical fuel conditions. In 2006, the average ERC value was 45 or more from July 21st through September 10th, with a peak 10-day average of 60.3. This year, the 10-day average did not exceed 45. The first daily-average ERC value of 45 occurred on August 14th. Last year, it occurred in mid-July.

| | |
|-----------------------------------|--|
| Critical ERC Days (50 or higher): | 4 (between Sept. 9th and 26th). |
| Highest daily average ERC: | <i>56.5 on September 11th. 56.2 on September 26th.</i> |
| Highest single-station ERC: | <i>Emigrant 69 on Sept. 9th and 26th. Emigrant 66 on Sept. 11th and 12th. Fields 65 on Sept. 12th.</i> |

NOTE: Emigrant did not exceed an ERC of 70. Last year this occurred on 25 days.

| | | | |
|--|---|------------|-----------|
| Number of days 100-hr FM was 10 or less: | 27. | 8 or less: | 4. |
| Lowest daily 100-hr FM: | <i>6.2 on September 11th. 7.1 on September 12th.</i> | | |
| Lowest single-station value: | <i>Emigrant 5 on multiple days. Fields 5 on September 11th and 12th.</i> | | |
| Highest daily 100-hr FM: | 23.0 on June 6th. | | |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

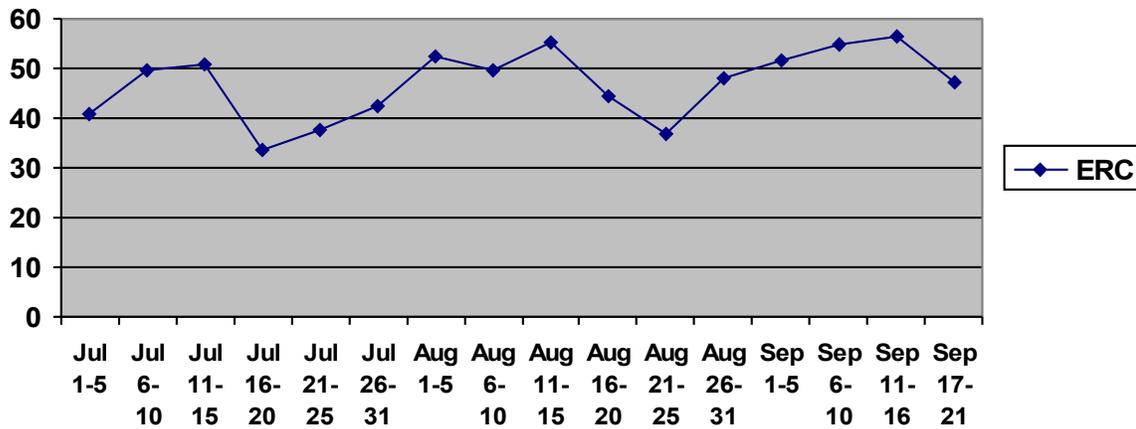


FIGURE 7 – 5-DAY AVERAGE ERC FOR EMIGRANT RAWS

FORECASTS AND SERVICES

SPOT FORECASTS

There were far fewer spot forecast requests this year compared to 2006. There were 95 spot forecasts through mid-November 2007, but 216 spot forecasts last year. Wildfire spot requests decreased from 96 last year to 25 in 2007. May was quite favorable for prescribed burn projects. The latter two-thirds of May were warm and dry. May was the busiest month for spot forecasts. There were 27 prescribed burn spot requests, or 44 percent of the total prescribed burn spot forecasts. The fall burning season turned out to be rather short. The middle three weeks of September were conducive to project burning, but an abrupt shift to much cooler and wetter weather at the end of September put an end to favorable burning opportunities. Figures 16 and 18, on pages 48 and 50, show the 2007 spot breakdown, by month, and the annual spot summary since 1992, respectively.

The Willamette National Forest continued to be the primary user. The Willamette NF accounted for 41 percent of the total spot requests. Last year the Willamette NF had 32 wildfire spot requests. This year there were just two. The Forest Service accounted for 15 of the 25 wildfire requests. The Oregon Department of Forestry continued to be more involved in the spot forecast program. The Portland Forecast Office arranged a few outreach opportunities for law enforcement agencies and the Coast Guard to better acquaint them with the spot forecast program for search and rescue missions. The education seemed to pay off, as there were eight search and rescue (SAR) spot requests. A couple of the SAR requests were for a renewed recovery mission on Mt. Hood. The remainder occurred in early November for a missing professor in the Willamette National Forest.

The most active spot months were May, July, and September. May and September were busy months for prescribed burn requests. July was the most active month for wildfire

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

spot activity. There were a handful of requests for training purposes, such as fire schools, and one other request for a spray project.

INTERESTING SPOT FORECAST TIDBITS FOR 2007

- ☛ The **FIRST** spot request for 2007 occurred February 1. The Willamette National Forest made a request for the prescribed burn project “Mutton Meadow”. The **LAST** spot request for the season was November 14. Lane County law enforcement submitted a spot request for a search-and-rescue mission.
- ☛ The **FIRST** wildfire spot was issued June 3, 2007 for a fire in the McKenzie district of the Willamette National Forest. The **LAST** wildfire spot forecast was issued October 27, 2007 for the Sodafork Fire, on ODF land in the Sweet Home unit.
- ☛ The most spot forecasts in one day: 7 on May 17th. There were 5 spots on June 3rd.
- ☛ There were 58 spot requests from the Forest Service (USFS), or 38 percent of last year. The USFS accounted for 61 percent of the spot total. The BLM made 11 requests, about 50 percent of last year’s total. All but one request was for prescribed activity. Oregon Department of Forestry (ODF) submitted 14 requests, 8 of those for wildfires. The spray project request came from Eugene BLM. Four spot requests came from Portland City Fire, and two wildfire requests were from the Columbia Gorge National Scenic Area.
- ☛ The 58 USFS spot requests were divided amongst the forests as follows: 39 for the Willamette, 10 for the Gifford Pinchot, 6 for the Mt. Hood, and 3 for the Siuslaw.
- ☛ All 11 BLM spot requests came from the Eugene district. There were no requests from the Salem or Coos Bay districts.
- ☛ August was actually a fairly quiet month. There were 9 spot requests this August, compared to 42 last year. September 2007 had 16 spot requests, down from 43 in September 2006. There were NO large fires (100 acres or Type II management level) in the Portland forecast area. However, the Portland Office did spots for the Ball Point Fire on the Barlow district of the Mt. Hood National Forest. Although the Portland Office has spot forecast responsibility for all of the Mt. Hood National Forest, the Pendleton Office has fire weather forecast responsibility for the east-side district of the Mt. Hood NF.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

TURN-AROUND TIME

“Turn-Around Time” has been documented since the 2000 season. It is defined as the elapsed time between spot request receipt, or notification, and forecast transmission. The Web-based spot program makes this element very easy to monitor. However, some complications continue for prescribed burns. Quite often, the user-agency will submit a spot request the day before actual ignition. Obviously, turn-around time is not applicable in these cases. The precedent for the Portland office is to disregard turn-around time for requests submitted in advance of the actual burn time.

The Memorandum of Understanding (MOU) between the Pacific Northwest Wildfire Coordinating Group (PNWCG) and Western Region of the National Weather Service (NWS) states that required turn-around times are to be at least 45 minutes for wildfire spot requests and 60 minutes for prescribed burns, unless prior arrangements have been made. The Portland office achieved a turn-around time of 37.69 minutes for prescribed burns, including the spray request, when turn-around time was applicable, and 39.24 minutes for wildfires. Average prescribed spot forecast turn-around time this year was 4.6 percent higher than 2006. The 2007 wildfire spot forecast turn-around time was 20.6 percent higher than last year, but still well within the MOU requirement. There are times the Portland office may not have a qualified spot forecaster on duty. When this occurs, a certified spot forecaster must be called back to the office.

The web-based spot program provides a quick and easy means for users to request spot forecasts. There were a few occasions when the completed spot forecast suffered delays upon transmission. These instances seemed to become less of a problem during the latter stages of the fire season.

There was once instance when the applicable turn-around time exceeded 100 minutes. A prescribed spot request for the Eastern Lane unit of the Oregon Department of Forestry on September 26th took 127 minutes to complete. However, prior arrangements were made with the user in this case. The request came in during the late morning of September 26th, but the scheduled ignition time was 1300 PDT. Prior arrangements were made with the user to have the spot forecast available after the regular morning fire weather forecast and the regularly scheduled internet briefing. Policy states that prescribed burn requests **SHOULD** be in by 1200 on any given day. Typical spot turn-around times were on the order of 25 to 40 minutes.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
FIGURE 16 – 2007 SPOT FORECASTS (BY MONTH)

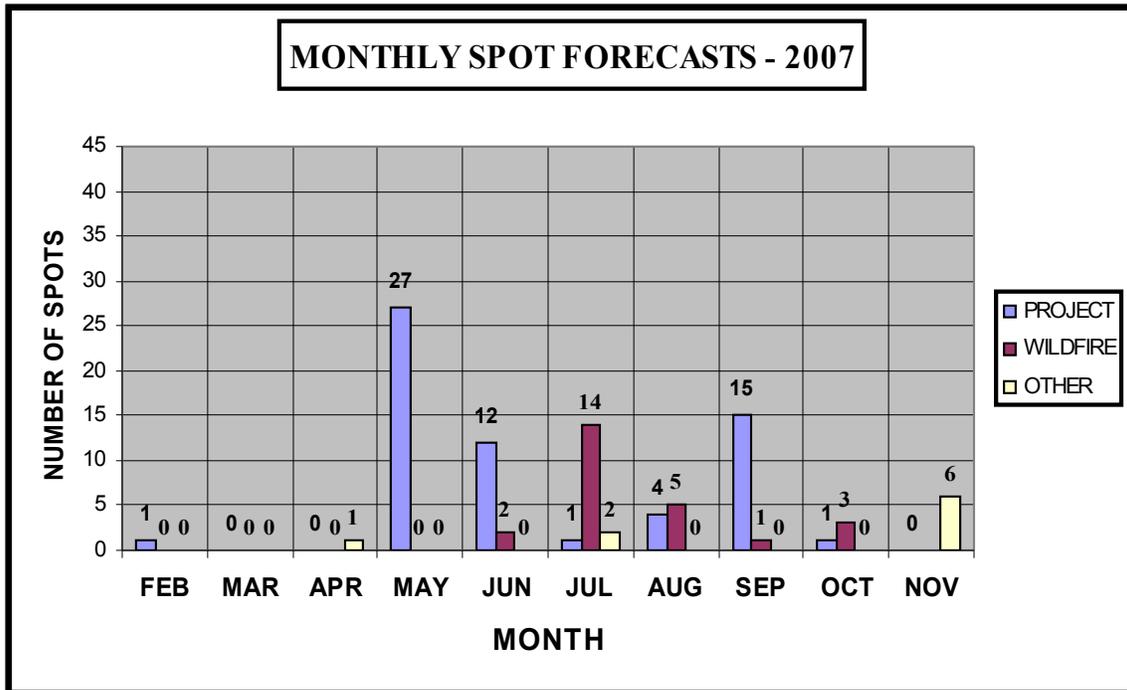


Table 9 shows the annual spot forecast data from 1994 to 2006. The spot frequency showed a dramatic increase from 2000 to 2003, but due to the change in forecast area responsibility and agency requirements for prescribed burns, 2004 spot totals were much lower. Also, some units/districts curtailed prescribed burn activities in 2004 due to budget constraints, staffing concerns, or a number of other reasons.

TABLE NINE – ANNUAL SPOT FORECAST DATA

| YEAR | PROJECT* | WILDFIRE | TOTAL |
|------|----------|----------|-------|
| 1994 | 44 | 21 | 65 |
| 1995 | 104 | 15 | 119 |
| 1996 | 64 | 51 | 115 |
| 1997 | 58 | 9 | 67 |
| 1998 | 52 | 31 | 83 |
| 1999 | 58 | 54 | 112 |
| 2000 | 89 | 20 | 109 |
| 2001 | 125 | 70 | 195 |
| 2002 | 123 | 147 | 270 |
| 2003 | 117 | 132 | 249 |
| 2004 | 71 | 21 | 92 |
| 2005 | 55 | 29 | 84 |
| 2006 | 120 | 96 | 216 |
| 2007 | 70 | 25 | 95 |

* = INCLUDES TRAINING SPOTS, SEARCH AND RESCUE, AND OTHER MISC. REQUESTS.

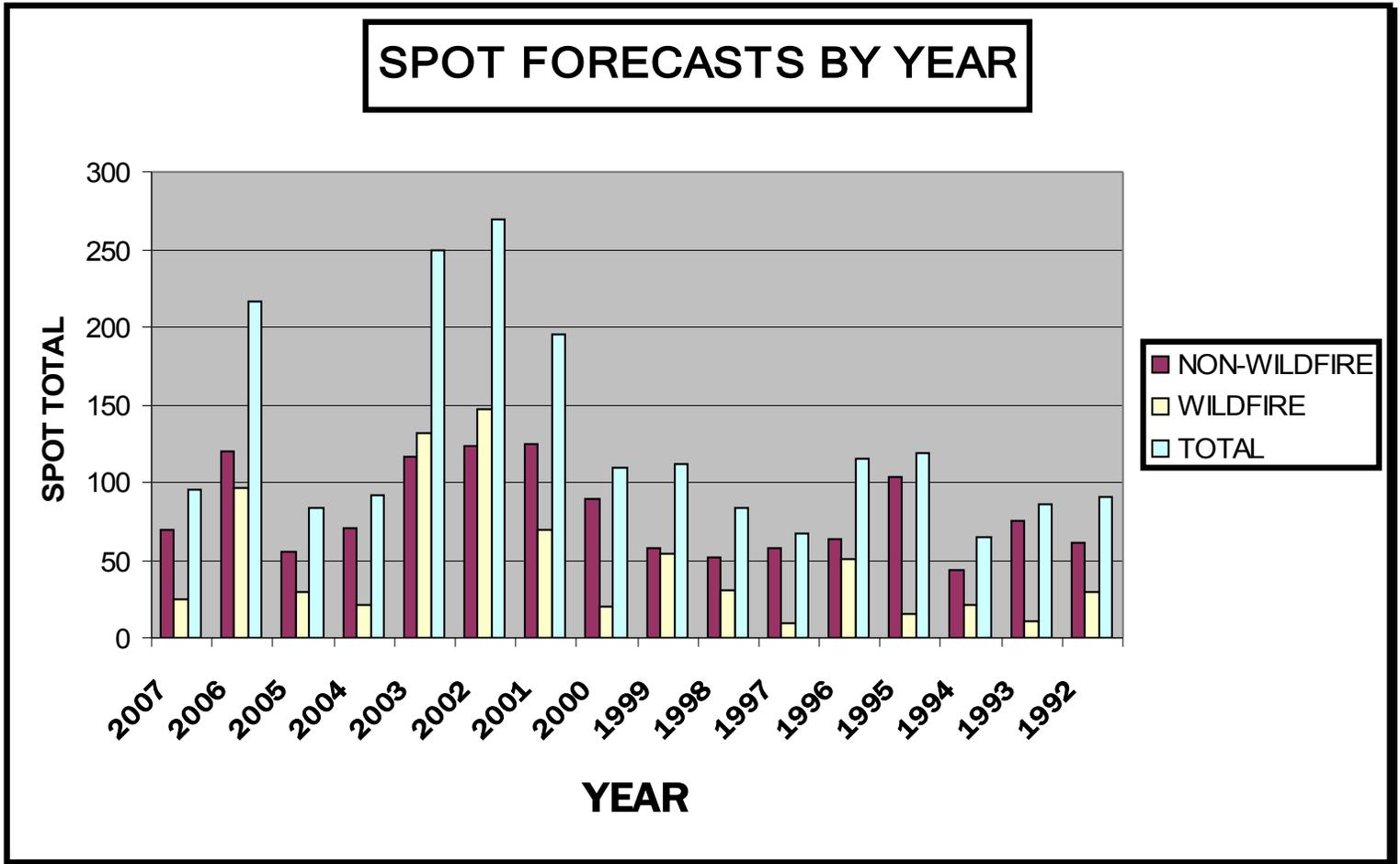
PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT



FIGURE 17 – GOLD HILL LOOKOUT IN THE WILLAMETTE NF

Figure 18 shows the yearly spot breakdown from 1992 to 2007

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT
FIGURE 18 – ANNUAL SPOT FORECAST TOTALS



FORECAST SERVICES

The fire weather desk was staffed from March 19, 2007 through October 26, 2007. Full-time fire weather operations (7 days a week) commenced on May 27, 2007, nearly the same time as last year, and ended on September 29, 2007. Internet weather briefings started on June 4, 2007. Participation has steadily increased during the past few years. There were generally 5-8 users on during peak fire season. Eugene Dispatch, Mt. Hood N.F., Gifford Pinchot N.F., several ODF units, and the Willamette N.F. (North and South zones) were the primary participants. Daily internet briefings ended on October 9, which was about one week earlier than last year. The Portland office participated in daily coordination calls set up by the Northwest Coordination Center. These calls started on June 18 and ended September 19. The Portland office also supplied one person to the Coordination Center from March through the end of October. The office continued to have two IMETs.

NFDRS forecasts started on May 22 and ended on October 7. Specific point forecasts continued for Village Creek, Pebble, and Fields, South Fork, Horse Creek, Wanderer's

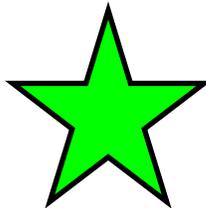
PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

Peak, Yellowstone and Canyon Creek RAWS. Verification statistics are based on persistence forecasts. The Northwest Coordination Center also compiles statistics at the end of the season to track forecast office performance, but uses a slightly smaller data set. The NWCC NFDRS forecast statistics are collected for the period June 1 through September 30, or about 115 forecasts.

The baseline statistic is forecaster improvement over persistence. The old Memorandum of Understanding (MOU), which expired in 2005, included verification performance standards. These standards included 35 percent improvement for temperature, 25 percent improvement for humidity, and 10 percent improvement for wind. The new MOU contains less rigid performance goals. The Portland office experienced a slight decline in temperature and humidity scores, but showed a very slight improvement in wind. This year, the average forecaster improvement over persistence for wind was –4.60 percent. In 2006 the score was –5.10 percent. Wind is a difficult parameter to overcome persistence. The Portland office managed to beat persistence in May and October, but faltered the remainder of the season.

TRAINING AND EDUCATIONAL OUTREACH ACTIVITIES

Portland continued to be heavily involved in teaching and training activities. Table 10 shows all of the outreach activities from last fall to this summer. The Portland office has several people involved. The S-190 through S-590 series has undergone major revisions. PowerPoint presentations have been developed, replacing the slides and overhead projection graphics. Portland continues to have some responsibility for teaching and training services for zones 609, 610, and 611 although Pendleton is the primary resource.



The GW Fire was initially reported at 0730 PDT August 31st, 2007. The lightning-caused fire started in the Mt. Washington Wilderness area. Strong west wind blew the fire toward the Black Butte Ranch. The Ranch was evacuated on September 3rd. The fire quickly grew to over 7,000 acres, and was 100 percent contained on September 11th.

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

TABLE TEN – TRAINING AND EDUCATIONAL OUTREACH ACTIVITIES

| DATES | ACTIVITY | AGENCY/USER | INSTRUCTOR |
|----------------------|---|--------------------|--------------------------|
| Dec. 4-8, 2006 | S-290 REDMOND | COCC | RUTHFORD |
| January 16, 2007 | S-390 REDMOND | COCC | RUTHFORD |
| January 17, 2007 | WILLAMETTE FMO MEETING | USFS/ODF | RUTHFORD |
| February 5-6, 2007 | S-290 EUGENE | ODF | WEISHAAR |
| February 23, 2007 | WILLAMETTE FMO MEETING | USFS | WEISHAAR/RUTHFORD |
| February 24-25, 2007 | S-290 MCKENZIE RFD | LOCAL | RUTHFORD |
| March 2-3, 2007 | PNW WORKSHOP | NWS | RUTHFORD |
| March 15, 2007 | RX-300 REDMOND | VARIOUS | WEISHAAR |
| March 12-16, 2007 | IMET WORKSHOP | NWS | RUTHFORD |
| March 19, 2007 | G. PINCHOT FMO MEETING | USFS | WEISHAAR |
| March 21, 2007 | SAFETY REFRESHER ZIGZAG | MT. HOOD | WEISHAAR |
| March 23, 2007 | WILLAMETTE FMO MEETING | USFS | WEISHAAR |
| April 4, 2007 | SEATTLE FIRE USERS CONFERENCE | VARIOUS | RUTHFORD |
| April 10, 2007 | NW IC MEETING | VARIOUS | RUTHFORD |
| April 11, 2007 | PORTLAND EASTSIDE AGENCY MEETING | VARIOUS | RUTHFORD |
| April 12, 2007 | BAKER CITY WA DNR | DNR | RUTHFORD |
| April 13, 2007 | NACHES RD | USFS | RUTHFORD |
| April 16-17, 2007 | S-390 EUGENE | USFS | RUTHFORD |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

TABLE TEN (CONTINUED)

| DATES | ACTIVITY | AGENCY/USER | INSTRUCTOR |
|-----------------------|---|--------------------------------------|-------------------|
| April 17-18, 2007 | S-290 ZIGZAG | USFS | WEISHAAR |
| April 21, 2007 | S-290 REFRESHER CORBETT | RURAL RFD | WEISHAAR |
| April 30, 2007 | MEETING WITH LOCAL FIRE DEPTS. | NWCC/NWS/LOCAL FIRE DEPT. | WEISHAAR |
| May 8, 2007 | FIRE WX SEMINAR | MCKENZIE RFD | WILLSON |
| May 22, 2007 | FIRE WX TRAINING | ZIGZAG RD | WEISHAAR |
| June 3, 2007 | S-290 TUALATIN VALLEY | TV F&R | WILLSON |
| June 9, 2007 | S-190 BRUSH PRAIRIE | CLARK COUNTY | RUTHFORD |
| June 11, 2007 | S-190 | TIMBERLAKE JOB CORP. | WEISHAAR |
| June 14, 2007 | NACHES RX REVIEW | USFS NACHES RD | RUTHFORD |
| June 19, 2007 | S-190 CAMP BALDWIN | USFS | WEISHAAR |
| June 24, 2007 | S-290 YAMHILL | YAMHILLF&R | WILLSON |
| June 25-28, 2007 | FIRE SCIENCE SMOKE MANAGERS | VARIOUS | RUTHFORD |
| June 25-26, 2007 | S-290 GUARD SCHOOL SWEET HOME | USFS/BLM/ODF | WEISHAAR |
| September 14, 2007 | SORA/AIRFIRE/FERA MEETING SEATTLE | VARIOUS | RUTHFORD |
| November 6-9, 2007 | PREDICTIVE SERVICES MEETING SANTA FE | VARIOUS | RUTHFORD |

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

IMET DISPATCHES

The 2007 fire season was less active than 2006. There were no large fires in the Portland Forecast area. However, two fires were in close proximity. The Ball Point Fire occurred on the east district of the Mt. Hood National Forest. The GW Fire took place in the Mt. Washington Wilderness, just over the Cascade Crest. The Portland office had two qualified Incident Meteorologists (IMET's) in 2007. One of the IMETs spent considerable amount of time detailed at the Northwest Coordination Center to provide support for decision-making and resource allocation. This continues to be a very important mission to the Coordination Center.

The Portland office filled **EIGHT** IMET requests. One dispatch was for a lengthy prescribed burn project in the Okanogan-Wenatchee National Forest.

1. NACHES PILOT PROJECT (20 DAYS)

IMET: JULIA RUTHFORD
DATES: April 25-May 25 (not inclusive)
LOCATION: Naches Ranger District.

BURN BOSS: Jim Bailey

2. MILFORD FLAT FIRE (10 DAYS)

IMET: JULIA RUTHFORD
DATES: July 8 through July 17
LOCATION: State of Utah, Color Country Interagency Fire Center

IMT: Great Basin Type I – Rowdy Muir IC
CAUSE: Lightning

3. RUGBY CREEK FIRE (4 DAYS)

IMET: SCOTT WEISHAAR
DATES: July 24 through July 27
LOCATION: Lewis and Clark NF, Belt Creek RD. Belt Creek Mountains south of Monarch, MT

IMT: Rocky Mountain Team A – Don Angell IC
CAUSE: Lightning

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

4. CASCADE COMPLEX (18 DAYS)

IMET: JULIA RUTHFORD
DATES: July 20 through August 6
LOCATION: Boise NF, Cascade RD. ICP near Warm Lake, ID.

IMT: Type II – Tom Suwyn IC, followed by California Type I
Rocky Oplinger -IC
CAUSE: Lightning

5. RATTLESNAKE COMPLEX (16 DAYS)

IMET: SCOTT WEISHAAR
DATES: July 30 through August 14
LOCATION: Nez Perce NF, Red River RD. ICP at Red River Ranger
Station
IMT: Northern Rockies Type II – Jess Secrest IC
CAUSE: Lightning

6. SPEAR SPRING FIRE (3 DAYS)

IMET: JULIA RUTHFORD
DATES: August 9 through August 11
LOCATION: Malheur NF, Burns Interagency Fire Zone. ICP in Seneca.
IMT: PNW Type II - Carl West IC
CAUSE: Lightning

7. WSA LIGHTNING COMPLEX (5 DAYS)

IMET: SCOTT WEISHAAR
DATES: August 17 through August 21
LOCATION: Warm Springs BIA ICP at Warm Springs Fairgrounds.
IMT: Central Oregon Type II - Goheen IC
CAUSE: Lightning

8. IRISH SPRING FIRE (10 DAYS)

IMET: JULIA RUTHFORD
DATES: August 18 through August 27
LOCATION: Vale BLM. ICP in Vale.

IMT: Pacific NW Type II – Carl West IC
CAUSE: Under investigation

PORTLAND FIRE WEATHER – 2007 ANNUAL REPORT

2007 MAJOR FIRES

There were no major fires (requiring at least a Type II Incident Management Team) in the Portland Fire Weather area during the 2007 season. The closest fires were the Ball Point Fire and the GW Fire.

FINAL SUMMARY

The 2007 fire season was divided into two segments. The majority of the season took place from mid-July through mid-August. A secondary, shorter segment began in late August and ended in late September. Extreme fuel conditions were not realized in 2007, although critical ERC values were reached in the Cascades on a few days. There were three Red Flag events, which was about average for any given year. Lightning activity was near normal in most areas, but well below normal in the Central Oregon Cascades and foothills. Antecedent conditions, including snow pack and spring precipitation, among other things, created some concern that the 2007 season would be more active, but this proved not to be the case. Despite a warm and dry May, cooler conditions in June and more frequent onshore episodes prevented fuel conditions from becoming too extreme. Widespread wetting rain events in mid-July and mid-August resulted in short dry spells. A series of cold and wet storm systems in late September through early October brought a sudden end to the season.

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